INDEX TO VOL. LXIII

Electrical Review and Western Electrician

JULY 5 TO DECEMBER 27, 1913

Published by
ELECTRICAL REVIEW PUBLISHING COMPANY,
608 South Dearborn Street, Chicago.

NEW YORK:
13 Park Row

DETROIT:
Dime Bank Building.

MINNESOTA
LIBRARY

Index to Vol. LXIII

Electrical Review and Western Electrician

JULY 5 TO DECEMBER 27, 1913

Articles marked* are illustrated; (E) indicates "Editorial."

A

Abesto automatic electric flatiron*.... 342
Accident prevention, importance of, in administration of compensation law, by Richard L. Drake..... 427
Accidents, electrical, in Great Britain 335
Accidents in metal mines, electrical.. 606
Accidents, "Safety First" policy reduces 423
Accounting, cost 826
Accounting department, mechanical devices in, by Y. M. White*..... 514
Accounting practice 682
Accounting, simplified, by A. E. Ward 731
Accounting system for electrical contractors, by W. J. Ball*..... 75
Acme coal mining plant*..... 387
Addenda 566
Adnil insulated telephone*..... 91
Advantages of clutch-type generator and separate starting and lighting units, by Alexander Churchward.. 1028
Advertising by contractor..... 273
Advertising, central-station, by D. H. McDougall 37
Advertising, electrical, moving-pictures and (E) 955
Advertising in Boston, effective..... 412
Advertising in technical press, by Charles L. Benjamin..... 86
Advertising of electric signs and vehicles by central station, co-operative* 613
Advertising, psychology in 1057
Advertising, small dealers' 374
Advertising, small dealers' (E)..... 306
Advertising, small dealers', by Richard E. Smith*..... 322
Advertising specific service achievements (E)..... 954
Advertising, technical (E)..... 59
Advertising that appeals to women.. 337
Advertising value, keeping interiors lighted for (E)..... 706
A. E. G. searchlight*..... 290
Aeroplane, miniature electric*..... 240
Aeroplane to patrol lines..... 1081
Albion power plant destroyed by fire.. 108
Alexalite indirect-lighting unit*..... 89
Allowable potential of overhead wires in city streets..... 430
Alloys, copper, melting points of some commercial 1086
Alternating-current lines, iron conduit for 218
Alternative motor drive proposition (E) 306
Alternator with external rotating field, new design of*..... 1131
Aluminum, increasing use of, creates demand for induction furnaces in India 262
Aluminum cable, steel-reinforced..... 93
Aluminum for cables (E)..... 258
Aluminum foil..... 143
Aluminum, solder for..... 1062
Ambulance service for London, increased 1218
American Electric Railway Association, convention of...557, 708, 756, 825
American Electric Railway Association, mid-year meeting and dinner of 1250
American Electrochemical Society, fall meeting of.....404, 483, 583
American Electrotherapeutic Association, annual meeting of..... 508
American Foundrymen's Association, convention of..... 757
American Institute of Chemical Engineers, annual meeting of..... 652
American Institute of Electrical Engineers, Chicago Section.....932, 1079
American Institute of Electrical Engineers, convention of (E)..... 1
American Institute of Electrical Engineers, Lynn Section....758, 1052, 1154
American Institute of Electrical Engineers, meeting of board of directors of.....356, 805, 1052
American Institute of Electrical Engineers, Pacific Coast Convention of 628
American Institute of Electrical Engineers, Pittsburgh Section..... .....806, 1025, 1274
American Institute of Electrical Engineers, report of thirtieth convention of..... 24
American Institute of Electrical Engineers, Toledo Section..... 986
American Institute of Electrical Engineers, 286th meeting of.....653, 781
American Institute of Electrical Engineers, 287th meeting of..... 782
American Institute of Electrical Engineers, 288th meeting of..... 1028
American Institute of Electrical Engineers, 289th meeting of..... 1230
American machinery for extension of Cauvery Falls water-power plant in India..... 140
American Mine Safety Association, convention of..... 158
American Mining Congress, convention of.....108, 356, 756
American Museum of Safety, meeting and banquet of..... 1202
American Physical Society, meeting of 1126
American Society of Mechanical Engineers, annual meeting of..... 1004
American Society of Mechanical Engineers, meeting of..... 653
American Telephone & Telegraph Company proposes independent control and management of Western Union and arranges for extension of long-distance facilities to independent companies 1272
American Telephone & Telegraph stations 1169
American Water-Works & Guarantee Company, receivers appointed for 87
Ammeters, high-frequency..... 773
Among the contractors..... .....19, 77, 125, 219, 277, 323, 375, 470, 524, 569, 618, 725, 771, 869, 922, 1017, 1064, 1112, 1215, 1263
Among the supply men..... ...79, 222, 462, 574, 822, 1069, 1117, 1218
Analysis, by L. A. Osborne, of benefits of co-operation through Society for Electrical Development..... 261
Analysis of power conditions in an electrically operated laundry*.... 1207
Analysis of some complaints and grievances of central-station customers, by A. R. Cordner..... 268
Anesthesia apparatus, electrically operated* 640
Angle bulletin reflector, new* 1281
Ann Arbor, Mich., new central-station building in*..... 719
Annual report of Commissioner of Patents 536
Annual tables of constants 1280
Annunciator, Connecticut electric reset* 539
Annunciator wiring*..... 726
Annunciators, connections for*..... 278
Another victory for wireless (E)..... 755
Ants, poles and cables destroyed by.. 880
Apparatus for cleaning steam boilers and scaling ships*..... 295
Appliance department, organization of, by B. E. Rowley..... 34
Arc lamps as substitutes for safety gates 1004
Arc lamps, indirect lighting by, by Justus Eck..... 518
Arc lamps, rewinding coils of..... 1063
Arc welding apparatus, C & C electric 38
Argentina, electrical congress in..... 204
Arlington radio station in regular communication with Paris..... 1052
Armature band wires..... 82
Armatures, convenient device for testing* 617
Armatures of motors or generators, method of testing*..... 664
Armstrong patent upheld..... 128
Arrow E snap switches on world's biggest battleship*..... 988
Articulated cars for Boston..... 557
Asbestos-wood insulation in plant of Elkhart Hydraulic Company*.... 589
Associating electrical service with small costs (E)..... 306
Association Island, conference of representative electrical men at..405, 532
Association of Edison Illuminating Companies, convention of..... 558
Association of Iron and Steel Electrical Engineers, convention of..... 671
Association of Railway Electrical Engineers, convention of....710, 756, 875
Attachment plug, split*..... 240
Attachment plug, Tregoning separable* 189
Audion detector..... 976
Australia, licensing wiremen in..... 1262
Auto signal, electrically operated*.... 942
Auto salon, Boston's..... 1031
Automatic controller for alternating-current motor-driven machines*.. 1236
Automatic regulation of superheat*... 236
Automatic substations, by H. R. Summerhayes 30
Automatic substations (E)..... 57
Automatically switching apparatus to auxiliary supply mains*..... 142
Automobile accident, prominent electrical men victims of..... 308
Automobile, electric, touring by (E).. 651
Automobile headlights..... 1020
Automobile industry, 1909..... 54
Automobile manufacturing, electricity in* 559, 607
Automobile, traffic problems and, by Dr. E. E. Pratt..... 900
Automobiles, electrical equipment of 854
Automobiles, electrical equipment of gasoline 81
Automobiles, gasoline, electrical equipment of, by Frank Conrad..... 1028
Automobiles, gasoline, electrical equipment of (E)..... 1002

B

Bailey electric roadster, from Boston to Chicago in..... 910
Bailey roadster, another run in..... 1031
Baker electrics, some interesting*.... 500
Baker electrics take honors at Cleveland* 700
Baltimore Consolidated Section, National Electric Light Association.. 852
Baltimore, improvements in..... 613
Baltimore window display attracts attention* 213
Bangor dam completed..... 963
Banks, indirect lighting of*..... 742
Bare wire, use of for neutral in four-wire, three-phase system..... 1115
Batteries for gasoline-driven cars, Gould starting, lighting and ignition* 234
Batteries, storage, high-capacity..... 1021
Battery cars, railway..... 806
Battery-charging equipments, Wotton automatic* 139
Battery charging in apartment garages, by Maxwell Barry..... 908
Battery-charging panels, sectional bookcase idea applied to*..... 1146
Battery, lead, recent developments in, by Bruce Ford..... 902
Beardsley Chandelier Manufacturing Company, new plant of*..... 486
Bee, William G..... 357
Behavior of synchronous motors during starting, by F. D. Newbury.. 27
Bell, Professor, and Don Pedro, by Walter P. Phillips..... 229
Bell system and public, interests of (E) 403
Belt accidents and individual electric drive 270
Bending conduit, device for*..... 1018
Bending conduit, note on*..... 619
Bending conduits*.....126, 923, 1216
Bending fixture arms*..... 923
Best Electric Company's lock sockets* 1130
Bicycles for central-station employees 613
Big Creek power plant put in service 1172
Billboards in Toronto, fan*..... 213
Billing, economy in..... 314
Billing system in Louisville, Ky., new 411
Binding books by electricity*..... 465
Birmingham meeting of British Association for Advancement of Science, by John B. C. Kershaw..... 732
Bissell Company, F., sales conference of 574
Bit, improvised..... 573
Blackboard's position, influence of, on lighting of desks, by Mathilde Gstettner 480
Block-signal system for Santa Fe railway, electric..... 141

167416

Blow torch, universal*..... 141
Blower sets, big turbo 640
Blowers, speed regulation of motor-driven centrifugal, by H. F. Stratton* 784
Board for display of lamps*..... 523
Board of Trade units..... 1172
Boilers, apparatus for cleaning steam, and scaling ships*..... 295
Boilers, steam, economical operation of, by Thomas G. Coghian 634
Boilers, steam, in electrical power stations, by J. W. Jackson*..... 1180
Bond, Charles O.*..... 653
Bolt holes, filling countersunk..... 472
Bookbinding by electricity*..... 465

Book Reviews:

A Handbook of Wireless Telegraphy, by James Erskine-Murray 686
Advanced Shop Mathematics, by Earle B. Norris and Ralph T. Craigo 985
American Telegraph Practice, by Donald McNicol 1279
An Elementary Treatise on Calculus, by William S. Franklin, Barry MacNutt and Rollin L. Charles 231
An Expensive Experiment, by Reginald Pelham Bolton 1278
Application of Electric Power to Mines and Heavy Industries, by W. H. Patchell..... 985
Common-Battery Telephony Simplified, by Walter Atkins..... 336
Conservation of Water, by Walter McCulloch 1279
Design of Electrical Machinery. Vol. I. Direct-Current Dynamos, by William T. Ryan 1278
Diagram Giving Stresses in Beams 1173
Dynamo Laboratory Outlines for Students in Electrical Engineering, by John Fay Wilson..... 336
Electric Arcs, by Clement D. Child 483
Electric Central Station Distribution Systems, by Harry Barnes Gear and Paul Francis Williams 1172
Electric Light and Power Wiring, by George J. Kirchgasser..... 986
Electric Wiring and Lighting, by Charles E. Knox and George E. Shaad 233
Electric Wiring, by Joseph G. Branch 537
Electrical and Magnetic Calculations, by A. A. Atkinsin 1279
Electrical Meters, by Cyril M. Jansky 138
Electricity at High Pressures and Frequencies, by Henry L. Transtrom 483
Elementary Principles of Electricity and Magnetism, by Robert Harbison Hough and William Martinus Boehm 588
Engineering Valuation of Public Utilities and Factories, by Horatio A. Foster..... 232
Essentials of Electricity, by W. H. Timbie..... 336
Factory Lighting, by Clarence E. Clewell 483
Formulas and Tables for the Calculation of Alternating-Current Problems, by Louis Cohen..... 1280
Graphs in a Galleship Drum Room. Notes for Junior Assistants, by Edward Raymond-Baker 336
Growing Crops and Plants by Electricity, by E. C. Dudgeon.. 233
Harper's Beginning Electricity, by Don Cameron Shafer 1277
Harper's Wireless Book, by A. Hyatt Verrill 1277
Illinois Public Utility Commission Law and Municipal Ownership Law, by William J. Norton.... 1173
La Télégraphie et la Téléphonie Simultanées et la Téléphonie Multiple, by K. Berger..... 232
Light, Radiation and Illumination, by Paul Hogner..... 1172
Manual of Wireless Telegraphy and Telephony, by A. Frederick Collins 336
Methods of Measuring Electrical Resistance, by Edwin F. Northrup 1277
Overhead Electric Power Transmission, by Alfred Still..... 986
Practical Uses of the Wave Meter in Wireless Telegraphy, by J. O. Mauborgne 1279
Revolving Vectors with Special Application to Alternating-Current Phenomena, by George W. Patterson 336
Single-Phase Commutator Motors, by F. Creedy..... 1233

Book Reviews—Continued.

Socialism from the Christian Standpoint, by Father Bernard Vaughan 1280
Stabilität, Labilität und Pendelungen in der Elektrotechnik, by Hans Busch 231
Synchronous Motors and Converters, by Andre E. Blondel..... 1277
Tables Annuelles Internationales de Constantes et Données Numériques de Chimie, det Physique et de Technologie..... 336
Telephone Cables, by J. C. Slippy 588
Telephone Erection and Maintenance—A Handbook for the Contractor and Wireman, by Herbert G. White..... 588
The Design of Static Transformers, by H. M. Hobart..... 1278
The D'Este Steam Engineers' Manual 336
The Electric Vehicle Handbook, by H. C. Cushing, Jr., and Frank W. Smith..... 1173
The Electrical Blue Book—1913-14 1233
The Foundations of Alternate-current Theory, by C. V. Drysdale 1280
The Lighting Book, by F. Laurent Godinez 1233
The Science of Illumination, by L. Bloch 1172
The Theory of Measurements, by A. De Forest Palmer 1278
The Year-Book of Wireless Telegraphy and Telephony, 1913.... 1279
Theory and Practice of Technical Writing, by Samuel Chandler Earle 1278
Thirty Years of New York—1882-1912 537
Transformer Practice, by William T. Taylor 985
Wireless Telegraphy and Telephony Without Wires, by Charles R. Gibson 1277
Booklets of New York Edison Company, new..... 914
Booster, negative 621, 728
"Booster," New Albany..... 214
Boosters' Club of New Albany, Ind.. 1108
Boosting electrics in England..... 736
Boring tool*..... 726
Boston contractors' meeting..... 1017
Boston Edison Company, extensive electrical lecturing by..... 70
Boston Edison Company reduces lamp prices 315
Boston Edison Company Section, National Electric Light Association.. 852
Boston Edison energy growth..... 261
Boston Edison improvements..... 475
Boston Edison welfare work..... 626
Boston Edison's effective advertising 412
Boston Electric Motor Car Club..... .....119, 156, 556, 704, 758, 936, 1031
Boston street lighting..... 177
Boston to Chicago—1,301 miles—in Bailey electric roadster..... 910
Boston's electric auto salon..... 1031
Boudoir set, electric*..... 740
Box for porcelain tubes and knobs.. 1066
Boxes, installing, on concrete surface* 665
Boxing a Waverly electric for shipment to Japan..... 344
Bracket, Her boltless*..... 886
Bracket lamp with long swing*..... 1017
Brady, A. N., memorial for..... 227
Branch circuit, permissible load on.. 19
Brass and lead, electroplating....729, 823
Brazilian electric company, American supplies for..... 686
Bridge, electrical work on large public* 466
Bridge River hydroelectric project.... 127
Bridges, electric control of..... 986
British Association for Advancement of Science, Birmingham meeting of 261
British Association for Advancement of Science, Birmingham meeting of, by John B. C. Kershaw..... 732
British awakening to advantages of electric vehicles..... 1177
British colonial wireless stations..... 986
British municipal central station insists on exclusive supply..... 1161
British regulations respecting accuracy of meters..... 82
British wireless chain..... 156
Broc double-drive brougham*..... 1150
Brookline, Mass., "Lighted Way" in 1010
Brooklyn Christmas display..... 1209
Brooklyn Company Section, National Electric Light Association....13, 1250
Brooklyn Institute, lectures at..... 804
Brooklyn Post Office adopts central-station service..... 661
Brooklyn Post Office, central-station current for..... 513
Broom manufacturing, electricity in* 7
Brushes, carbon, selection and operation of, by W. P. Poynton..... 671
Buffalo electrical show..... 654
Burglars, wiring lamps for protection from* 972
Burns, A. J.*..... 1065
Busbar supports, unit type high-tension* 942
Busbars, keeping potential, taut*..... 1066
Buses, electric, for New York City... 1030
Buying, stock-keeping and 1262

C

C & C electric arc welding apparatus* 38
Cabinet for meter and cutouts*..... 1062
Cabinet requirements in Toledo 1215
Cabinets, wooden, and conduit work.. 1115
Cable from Portugal to Panama.... 179
Cable house at Halifax..... 654
Cable, splicing stranded 1167
Cables, aluminum for (E)..... 258
Cables for transmission of electrical energy, with special reference to mining work, insulated and bare copper and aluminum, by Burkewood Welbourn 283
Cables, two new telegraph 156
Cableway in Himalaya Mountains, electrically operated 75-mile..... 854
Cableway over Andes Mountains in Columbia, electrically operated aerial 1232
Calculating machine, Ensign electric*. 1083
Calcutta electrical engineers organize.. 984
Calendar, electric 863
California Commission news..... .....23, 79, 127, 176, 279, 374, 421, 473, 575, 668, 821, 976, 1067, 1168, 1265
California contractors move headquarters 817
California power company gets Federal permit 558
California power development 757
California State Association of Electrical Contractors, convention of* 174, 429
Campaign, Christmas 861
Campaign of Society for Electrical Development, by J. M. Wakeman.. 452
Campbell, Duncan T.* 757
Camp co-operation (E) 506
Canadian Electrical Association, convention of 33
Canadian Pacific electrification 230
Canadian water power 40
Cancer and secondary rays from calcium phosphate 1267
Candy factory, Watson motors in*.... 91
Canning factories, electricity in* 711
Car for Washington, D. C., new double-deck* 1135
Car illumination, improvement of street (E) 1003
Car, new type subway 687
Carbon and graphite, heat resistivity of, by J. W. Richards 583
Carbon, sawing* 126
Carpet store, high-class conduit job in, by H. G. Wilson*..... 614
Carrier system for mail, merchandise, etc., electric* 741
Cars for Boston, articulated..... 557
Cars, railway battery 806
Cars, restoring old, to use..... 333
Cars, street, and equipment, recent developments in, by Pittsburgh Railways Company, by F. R. Phillips and J. W. Welsh 1025
Cars, street, illumination of, by L. C. Porter and V. L. Staley 1023
Cash discounts in settlement of accounts, use of, by Fred P. Vose.. 1069
Catalog designations 576
Catenary, theory of nonelastic and elastic, as applied to transmission lines, by C. A. Pierce, F. J. Adams and G. I. Gilchrest 27
Causes of fires in central stations and their remedy 368
Cauvery Falls water-power plant, India, American machinery for extension of 141
Cedar, shipping, from logging operations to distributing yard* 1131
Ceiling, taking care of 820
Cellar drainer, automatic electric*... 1133
Cement, electric power helps reduce cost of 1057
Cement, substitute for 1189
Cement works, electricity in* 359
Census figures for 1909, electrical..... 838
Central Electric Railway Association, meeting of 4
Central heating in Boonville, Ind.... 709
Central-station advertising, by D. H. McDougall 37
Central station, British municipal, insists on exclusive supply..... 1161
Central-station building in Ann Arbor, new* 719
Central-station business at Steubenville, Ohio, developing..... 118
Central-station company, service code of successful 914
Central-station company supplies railway 1108
Central-station current for Brooklyn Post Office 513
Central-station customers, analysis of some complaints and grievances of, by A. R. Cordner 268
Central station does no wiring in Chattanooga 119

Central station, electric vehicle and (E) 1097
Central-station employees, meeting of 1108
Central station, facts and factors of 5,150 kilowatt 661
Central-station fires 925
Central station, German, enlargement of 984
Central station in small town, by H. L. Titus 715
Central Station Institute, night classes for 428
Central-station lecture service (E).... 905
Central-station legislation in Connecticut 13
Central-station loans, collateral for (E) 907
Central-station merchandising, by George R. Jones 412
Central-station power for ice-making and refrigeration 812
Central-station power for large chair factory 1258
Central-station power for printing.... 1161
Central-station power rates..... 873
Central-station power, twenty-two reasons for using 965
Central-station progress at Minneapolis 966
Central station, relation of, to its customers, by J. L. Shannon..... 611
Central-station service, cost of (E)... 1151
Central-station service, large manufacturer boosts 861
Central-station supply (E) 754
Central station, value of electric vehicle to 701
Central stations and electric-vehicle manufacturers, co-operation between, by E. L. Callahan 859
Central stations, causes of fires in, and their remedy 368
Central stations, cost of manufacture in six medium-sized, by E. F. Lathrop 11
Central station's greatest opportunity —the electric vehicle, by E. E. Witherby* 49
Central stations in small towns, by A. B. Marsden 622
Central stations, problems of small (E) 707
Central stations, simplifying small (E) 305
Centralized control system for the Panama Canal locks* 1251
Chain, the, by Thomas Chandler.... 463
Chair factory, central-statior power for large 1258
Characteristics of insulation resistance, by S. Evershed* 1223
Charging of batteries in unattended garages, by Maxwell Berry..... 900
Chart for two-rate schedule, power bill, by E. D. Dreyfus* 270
Chart of power costs, graphical, by J. P. Ripley* 1058
Charter Oak Stove Company boosts central-station service 861
Chattanooga and Tennessee River Power Company's Hale's Bar project* 1005
Chattanooga and Tennessee River Power Company's hydroelectric plant, opening celebration of..... 1032
Chattanooga's White Way*..... 463
Cheese, maturing, by electricity..... 415
Chicago automobile day at Perry centennial 358, 404
Chicago Central Station Institute, night classes for 428
Chicago contractor adopts easy-payment plan 725
Chicago contractors register 472
Chicago Credit Association, meeting of, ... 1004
Chicago Electric Club 4, 310, 381, 404, 604, 652, 837, 852, 908, 956, 1052, 1154, 1271
Chicago has fine Jovian rejuvenation* 1222
Chicago Inspection Bureau celebrates anniversary 1215
Chicago, inspection of outside wiring in 524
Chicago manufacturers, electrical exhibits in unique South American display of* 688
Chicago, municipal street lighting in (E) 451
Chicago park and boulevard lighting in* 577
Chicago, public street lighting in*..... 453
Chicago rates, report on..... 717
Chicago Section American Institute of Electrical Engineers..... 932, 1079
Chicago's alternate plans for city-owned passenger subways 310
Chicago Section, Electric Vehicle Association of America..110, 254, 260, 423
Chicago Section, Illuminating Engineering Society....6, 804, 1023, 1221
Chicago smoke and electrification, by W. F. M. Goss 433
Chicago telephone companies seek permission to consolidate 108
Chicago to advertise for proposals for subway system 1027
Chinese electric railway, first 832
Choosing the motor (E) 506
Christmas campaign 861
Christmas campaign, Denver Company's 1260
Chuck and drill* 175
Church lighting* 855
Church lighting, by R. B. Ely..... 677
Circuit-breakers for connecting auxiliary supply, automatic* 142
Circuit-breakers, oil, by K. C. Randall. 629
Circuit wires in same conduit with service wires 21
Circuits, convenient way of testing out 523
Circuits, electric, instability of, by Charles P. Steinmetz 932
Circuits in finished houses, fishing... 524
Circuits in finished houses, running concealed 525
Circuits of electric spring cutter* 523
Circuits, unusual combination of* 922
Circus lighting, gasoline-electric generating set for* 294
City engineer wanted 1068
Civil service examinations..... 576, 822, 908, 1222
Cleat line, pulling, taut* 525
Cleveland, new wiring rule in..... 1215
Cleveland situation, by C. N. Duffy.. 825
Cleveland utilities, severe storm interrupts service of* 1026
Clock, alarm, extending radius of*.... 573
Clock, electric alarm* 278
Clock, extending radius of striking*..125
Clocks for Montreal City Hall, electric 788
Clocks, London 406
Clutch-type generator and separate starting and lighting units, advantages of, by Alexander Churchward 1028
Coal, Alabama 469
Coal and ash-handling equipment at Pacific Mills print works* 832
Coal, Arkansas 739
Coal, Illinois 576
Coal, increase in Alabama 565
Coal, Kentucky 931
Coal, Maryland 128
Coal mine, a portable substation for a* 1238
Coal-mine accidents, electrical 531
Coal-mining machinery in Pennsylvania, increasing use of 333
Coal mining plant, Acme* 387
Coal output in Indiana increased..... 636
Coal, Pennsylvania 405
Coal production, Colorado 262
Coal production in 1912, United States. 337
Coal production in Pennsylvania in 1912 13
Coal production, Utah 419
Coal production, West Virginia..... 136
Coal production, Wyoming..... 141
Coal record broken in Ohio 340
Coal, spontaneous combustion of..... 587
Coal, storage of (E)..... 553
Coal, Tennesse 917
Coal used for coke 109
Coals, high-grade Washington 482
Coasting-time recorders, Rico* 1188
Code equality and sales possibilities, by William G. Campbell 281
Coke, coal used for 109
Collateral for central-station loans (E) 907
College instructors work in shops*.... 227
Collier, naval, electrically propelled.. 228
Collins, W. J.* 77
Colorado coal production 337
Colorado Electric Light, Power and Railway Association, annual meeting of 731
Commercial department, management of, by C. A. McMicken 529
Commercial vehicles in New York, users of electric 714
Common-battery equipment for fire-alarm offices 431
Common electrical dangers 373
Commonwealth Edison Company announces Mazda lamps at reduced rates 214
Commonwealth Edison Company, record output for 1108
Commonwealth Edison Company, spectacular sign of* 1259
Commonwealth Edison Company, 25,000-kilowatt unit for* 938
Commonwealth Edison contract department discusses electric vehicles 966
Commonwealth Edison rates and policy, Mr. Insull on 1107
Commonwealth Edison Section, National Electric Light Association.. ..... 784, 957, 1108, 1222
Commonwealth Pier, South Boston, Mass., utilizing electrical energy in construction of* 211
Commutating-pole saturation in direct-current machines, by H. E. Stokes. 28
Commutator work, tool for* 922
Commutator, slotting* 1170, 1266
Commutators, tool for slotting* 773
Competition, by Dr. Charles P. Steinmetz 535
Complaint record of Detroit Edison Company 413
Complaints by customer 612
Computing costs by aid of telephone* 142
Concerning specifications (E) 59
Concrete buildings, wiring in 1171
Concrete construction, installation of rigid-conduit work in buildings of, by G. N. McCarthy* 720, 769, 814
Concrete mixer, motor-driven*..... 343
Concrete poles, manufacture and installation of, by C. L. Brown..... 778
Concrete poles, special street illumination with, by F. A. Pielsticker.... 777
Concrete service boxes 124
Concrete surface, installing boxes on* 665
Concrete, waterproof 1112
Conductors, sealing electrical, through glass 733
Conduit charts, revised..... 1063
Conduit, device for bending*..... 1018
Conduit fisher, pneumatic* 943
Conduit, flexible, in brick walls..... 974
Conduit, flexible metallic, use of..... 1114
Conduit in terra cotta, practical methods in installation of, by G. N. McCarthy* 1162
Conduit job in carpet store, high-class, by H. G. Wilson* 614
Conduit, note on bending*..... 619
Conduit on terra cotta walls or ceilings, installing 278
Conduit, proper, for circuit (E) 202
Conduit, pulling wire into..... 1167
Conduit services, installing* 820
Conduit terminal fitting 221
Conduit, threading, without vise*..... 923
Conduit work and wooden cabinets.... 1115
Conduit work in fireproof building*... 1109
Conduit work, rigid, installation of, in buildings of concrete construction, by G. N. McCarthy*.....720, 769, 814
Conduit work, some good*..... 570
Conduits, bending* 126, 923, 1216
Conduits, cutting off crowded..... 1216
Conference of representative electrical men at Association Island....405, 532
Congress on School Hygiene 357, 478
Conlon electric washing machine*..... 792
Connecticut, central-station legislation in 13
Connecticut Electric Reset annunciator* 539
Connections for annunciators* 278
Connectors, storage-battery 928
Conservation Congress (E)..... 1002
Conservation Congress, water power at 1033, 1073
Consolidated Company, of Baltimore, making improvements 613
Constants, annual tables of 1280
Constant-voltage transmission, by H. B. Dwight 27
Contractor adopts easy-payment plan.. 725
Contractor, advertising by..... 273
Contractor, cost-keeping for small (E) 355
Contractor, electrical, and Society for Electrical Development 1016
Contractor, electrical, some printed forms for, by E. M. Raetz*..... 917
Contractor, the inspector and the.... 124
Contractors, among the 19, 77, 125, 219, 277, 323, 375, 470, 524, 569, 618, 725, 771, 869, 922, 1017, 1064, 1112, 1215, 1263
Contractors' conventions, suggestion concerning (E) 203
Contractors, electrical, co-operation of allied electrical industries from standpoint of, by John A. Gilliland. 615
Contractors, electrical, effects of registration of 971
Contractors, electrical, guarding interests of 971
Contractors licensed in Asheville, N. C. 277
Contractors meet, Kansas 774
Contractors promote Liverpool exhibition, electrical 817
Contractors register, Chicago..... 472
Contractors, registration to be required of Chicago 174
Contractor's shop, electrical, increasing efficiency of, by William E. Rhodes 1164
Contracts, two large, in Pittsburgh.. 1260
Control equipment to provide safety insurance in elevator service*..... 787
Control of alternaitng current fire-pump motors, by Harrison Pierce Reed* 540
Control of electrical installation by municipality 816
Control of mercury-arc rectifier..... 928
Control system, centralized, for Panama Canal locks* 1251
Control wiring on switchboards, by E. W. Dullea* 218
Controller, automatic, for alternating-current motor-driven machines*.. 1236
Controlling motors, new method of.. 80
Convention delegates travel by trolley 758
Convention of American Institute of Electrical Engineers (E)..... 1
Convention of Illuminating Engineering Society (E) 649

Conventions:
American Electric Railway Association 557, 708, 756, 825
American Eletrochemical Society 404, 483, 583
American Foundrymen's Association 757
American Institute of Chemical Engineers 652
American Institute of Electrical Engineers 24, 628
American Mine Safety Association 158
American Mining Congress 108, 356, 756
American Museum of Safety 1202
American Society of Mechanical Engineers 1004
Association of Edison Illuminating Companies 558
Association of Iron and Steel Electrical Engineers 671
Association of Railway Electrical Engineers 710, 756, 875
California State Association of Electrical Contractors* 174, 429
Canadian Electrical Association.... 33
Colorado Electric Light, Power and Railway Association 731
Electric Vechicle Association of America 697, 710, 757, 897
Electrical Contractors' Association of the State of Missouri*..... 219
Electrical Contractors' Association of Texas 1064
Electrical Contractors' Association of Wisconsin 219
Electrical Supply Jobbers' Association 1069
Empire State Gas and Electric Association 557, 737
Federation of Trade Press Associations 635
Illinois State Electric Association 556, 669
Illuminating Engineering Society 6, 227, 358, 674
Indiana Electric Light Association 556, 681
International Association of Municipal Electricians 323, 430
Kansas Gas, Water, Electric Light and Street Railway Association 357, 508, 777
Michigan Section, National Electric Light Association..... 424
National Association of Cotton Manufacturers 531
National Association of Railway Commissioners 937
National Electric Light Association, New England Section..... .....109, 508, 622
National Electrical Contractors' Association 60, 110, 171
National Electrical Supply Jobbers' Association.....127, 574
Northwest Electric Light and Power Association 356, 528
Ohio Electric Light Association 61, 180
Pennsylvania Electric Association 356, 630
Railway Signal Association ...260, 838
Society for the Promotion of Engineering Education 4
Telephone Pioneers of America* 204, 835
Wisconsin Electrical Association 1100
Conventions, suggestion concerning contractors' (E) 203
Converters, Wagner single-phase synchronous* 944
Cooking and heating, domestic electric 734
Cooking-apparatus design, principles for (E) 107
Cooking at camp, electric..... 824
Cooking by unity-load-factor electric ranges, by Mathias E. Turner.... 181
Cooking campaign, electric, results obtained from active..... 214
Cooking, electric, at New York show* 940
Cooking, electric, by George A. Hughes 1106
Coolidge, Ga., light plant burns..... 369
Cooling effect of leading-in wires, by T. H. Amrine 675
Cooling gas engines, Hopkinson method of* 990
Coon Rapids project 564
Co-operation between electric-vehicle manufacturers and central stations by E. L. Callahan 859
Co-operation, camp (E) 506
Co-operation in development of electrical industry (E) 154
Co-operation of allied electrical industries 625
Co-operation of allied electrical industries from standpoint of electrical contractors, by John A. Gilliland 615
Co-operative advertising of electric signs and vehicles by central station* 613
Coosa River, progress on 1100
Copper-bearing sheets and tin plates. 1135
Copper, Colorado 522
Copper exports.....37, 70, 135, 177, 488, 582, 737, 827, 872, 921, 1119, 1179
Copper production, Idaho..... 482
Copper production in Maryland and Pennsylvania 83
Copper production in Missouri 226
Copper production, Oregon 685
Copper production, Tennessee..... 167
Copper-smelting furnace tried in Arizona, electric 636
Copper wire base 282
Copper wire, standard specifications for 80
Cord and rope mills, electricity in* 1155
Cord holder for electric irons*..... 886
Cord, lamp, reel for* 1261
Cordless jacks for way-station service* 1282
Corona and electrical precipitation, by W. W. Strong 32
Corona loss, prevention of 422
Corona, oscillographic study of, by Edward Bennett 32
Corrosive action on lead cables..... 187
Cost accounting 826
Cost-keeping for small contractor (E) 355
Cost of central-station service (E).. 1151
Cost of electric service* 1174
Cost of hydroelectric energy (E)..... 153
Cost of manufacture in six medium-sized central stations, by E. F. Lathrop 11
Cost of pumping by electricity..... 964
Cost system, small dealer's 618
Cost system, small dealer's by Richard E. Smith* 370
Cotton-seed oil mills, electricity in, by W. L. Southwell* 911
Countersunk bolt holes, filling 472
Cowie, E. S.* 869
Crane, locomotive, with turbogenerator for lifting magnet*..... 1133
Crane motor, wiring to* 78
Cranes, accurate control of giant floating* 1036
Cream separator, electrical* 485
Crossing signals, electric-railway*.... .....824. 927
Cuban electric light plants 186
Current electrical news..... 41, 97, 145, 193, 241, 297, 345, 393, 441, 489, 545, 593, 641, 689, 745, 793, 841, 889, 945, 992, 1041, 1089, 1137. .....1191, 1239, 1286
Customer, complaints by 612
Customers, retention of business of dissatisfied, by Thomas F. Kelley 117
Cutout, service switch and 1114
Cutter Idealite fixtures* 786
Cutting flexible tubing 278, 726
Cutting holes in service boxes 175, 325
Cutting holes in service cabinets*.... 573
Cutting off crowded conduits 1216
Cutting outlets in plastered ceilings, tool for* 278
Cuyahoga Falls suit 1071
Cyanide solutions, electrolysis of, by Edward F. Kern 583
Cyanides, electrolysis of aqueous solutions of simple alkaline 583

D

Dam at Long Sault opposed..... 508
Danger from stream of water striking high-tension line..... 23
Dangers, common electrical..... 373
Data on city water pumping with electric motors* 812
Data on electric welding..... 915
Dayton Electric Car Company in good shape 1148
Decatur Railway & Light Company supplies power for Wabash shops..565
Decorating lampposts 565
Demonstration board loaned to Civil Service Commission 1258
Dental lathe, Westinghouse*..... 439
Denver Company's Christmas campaign 1260
Denver & Rio Grande electrification.. 1081
Denver argument for electric irons.. 368
Denver company boosts fan sales.... 214
Denver offered cheaper lighting..... 411
Denver service 1260
Department stores, electricity in*... 205
Depreciation of gold (E) 601
Desk, how to stand on, without injuring it 820
Details of automatic pumping station at Farmington, Mich., by A. R. Cary 367
Determination of operating costs of power installations, by C. A. Fees 765
Detroit Edison Company, complaint record of 413
Detroit electric, long trip in..... 502
Detroit Electric makes progress..... 340
Detroit electrical men have enjoyable outing 310
Detroit ironclad entrance switches*.. 1235
Detroit Society meeting 556
Detroit, special rules in force in..... 277
Developing central-station business at Steubenville, Ohio 118
Developing electrical specialties (E).. 1051
Developing special lighting applications (E) 850
Developing use of electric vehicle (E) 849
Development of water power (E).... 1049
Dielectric hysteresis at high frequencies 1183
Dielectric strength of thin insulating materials, by F. M. Farmer..... 1230
Diesel engines, operation of..... 681
Diesel engines to be manufactured by McIntosh & Seymour Corporation 1087
Diesel locomotive, first..... 1038
Direct-current dynamo and motor troubles 662
Direct-current turbogenerators, by H. A. Rapelye 671
Diseases, industrial, electricity and (E) 1152
Display-room car of Middle West Company* 13165
Distinctive store lighting, by A. L. Powell and C. L. Law..... 678
Distribution of electric energy, pres-
Diversity-factor (E) 1248
ent and future, by Samuel Insull 532
Dixon (Ill.), inaugurates White Way* 735
Do it electrically..... 1128
Dollar wiring kinks* 78, 126, 175, 278, 325, 376, 420, 525, 573, 619, 726, 775, 820, 923, 973, 1018, 1066, 1167, 1216, 1264
Domestic appliance campaigns in New England 657
Domestic electric heating and cooking 734
Double bridge, Thomson* 730
Douglas Electric Construction Company* 121
Drafting room, illuminating a, by J. A. Hoeveler and Hugh D. Butler* 929
Drawback on electric lamps..... 539
Dredger, electric power on, by Richard E. Smith* 771
Dresden Technical High School, electrical laboratory of* 1269
Drill chuck, quickly made* 175
Drill, motor-driven* 738
Drill, new type of stone..... 726
Drilling walls 325
Drills, electric 1065
Dry cell, life of..... 730
Duffield, George H., appointed secretary of National Electrical Contractors' Association 310
Dumb-waiter elevator mechanism, direct-drive* 189
Duquesne Light Company Section, National Electric Light Association 452, 862, 910, 1250
Dynamo troubles, direct-current*.... 662

E

Edison cell for pleasure cars and light delivery wagons, new* 437
Edison Company of Boston making improvements 475
Edison medal, William Stanley and (E) 2
Edison on electrics..... 504
Edison power in New York subways 661
Edison Storage Battery salesmen,-meeting of* 254
Educating public in use of light.... 459
Edwards, H. M.* 157
Effect of electric oscillations on metallic salts 1183
Efficiency in handling of merchandising details, by H. R. Brand.... 1069
Efficiency of eye under different systems of illumination (E)..... 650
Efficiency of eye under different systems of lighting (E)..... 449
Efficiency of eye under different systems of lighting, by C. A. Ferree* 479
Elastic steel automobile tires..... 989
Elbows for metal molding, Fancleve cast* 144
Electric alarm for oil pump*..... 1063
Electric Appliance Company, new quarters at New Orleans for*... 1117
Electric-appliance merchandising, by W. G. Stetson 624
Electric automobile, touring by (E) 651
Electric automobiles 249
Electric boudoir set*..... 740
Electric buses for New York City... 1030
Electric calendar 863
Electric carrier system for mail, merchandise, etc.* 741
Electric Club of Chicago..... .....4, 310, 381, 404, 604, 652, 837, 852, 908, 956, 1052, 1154, 1271
Electric Club of Kansas City..... 1016
Electric commercial vehicles in New York, users of 714
Electric control of bridges..... 986
Electric cooking at camp..... 824

Electric cooking at New York electrical show* 940
Electric cooking, by George A. Hughes 1106
Electric copper-smelting furnace tried in Arizona 636
Electric drills 1065
Electric drive for main rolls, by Brent Wiley 672
Electric drive for rolling mills (E).... 755
Electric drive, individual, belt accidents and 270
Electric drive in machine shops, by Charles Fair 782
Electric elevators as desirable central-station load* 365
Electric heating apparatus, by H. O. Swoboda 806
Electric heating, by John S. Staudt.. 685
Electric house pumps* 291
Electric iron-ore smelting in Sweden 537, 984
Electric light, plant growth under.. 880
Electric lighting for motor cars, by Alfred E. Waller..... 1028
Electric lighting, incidental improvements in (E) 1050
Electric lights in Westminster Abbey 110
Electric means for making self-ushering theatres practicable 1261
Electric meat-curing and electric tanning 927
Electric motor and steam engine in parallel 569
Electric Motor Car Club of Boston 119, 156, 556, 704, 758, 936, 1031
Electric plant, new Italian..... 605
Electric power exhibits, improving (E) 906
Electric power for Tokio, Japan.... 1157
Electric power on dredger, by Richard E. Smith* 771
Electric power used in Norway..... 80
Electric prism action sign* 739
Electric-railway crossing signals..... .....824*, 927
Electric railway proposed for Bagdad 340
Electric restaurants in Europe..... 982
Electric roadster, touring in (E).... 907
Electric service booklet 1259
Electric service, cost of* 1174
Electric service from three-wire direct-current generators* 1060
Electric shadow portrait of William Jennings Bryan* 885
Electric show at Reading, Pa..... 214
Electric sign erected in Baltimore during advertising convention*.. 13
Electric sign for New York Edison, new* 518
Electric sign for San Antonio Brewing Association* 767
Electric sign in Washington, large spectacular* 541
Electric sign, new form of*..... 90
Electric-sign problem (E) 803
Electric signs in Evansville..... 119
Electric signs in New York, income from 119
Electric smelting in New Caledonia, hydroelectric plant for 296
Electric steel plant for Indianapolis..854
Electric strength of air, by John B. Whitehead and T. T. Fitch..... 32
Electric tractor for lumber and saw mills 1187
Electric truck, record performance for 296
Electric trucks, large order for..... 964
Electric-vehicle advertising in Boston 119
Electric-vehicle advertising, suggestion concerning (E)..... 259
Electric vehicle and central station (E) 1097
Electric Vehicle Association of America 565, 697
Electric Vehicle Association of America, annual meeting of..... 654
Electric Vehicle Association of America, Chicago Section..... .....110, 254, 260, 423
Electric Vehicle Association of America, convention of..... .....697, 710, 757, 897
Electric Vehicle Association of America, New England Section.....728, 1265
Electric Vehicle Association of America, Philadelphia Section 1250
Electric Vehicle Association of America, Publicity Committee of..... 54
Electric vehicle, by Stephen G. Thompson 36
Electric vehicle, developing use of (E) 849
Electric vehicle for Christmas deliveries (E) 1248
Electric-vehicle formulas 423
Electric vehicle in Great Britain..... 119
Electric vehicle, long reliability of English 108
Electric-vehicle operating data..... 915
Electric-vehicle manufacturers and central stations, co-operation between, by E. L. Callahan..... 859
Electric vehicle salesmanship, by George H. Kelly and E. J. Bartlett 900
Electric vehicle section*..... .....49, 249, 497, 697, 897, 1145
Electric vehicle situation in Chicago 966
Electric vehicle, value of, to central station 701
Electric vehicle, value of, to central station, by W. H. Snow and David W. Beaman 624
Electric vehicles at New York Electrical Show 60
Electric vehicles, British awakening to advantages of 1177
Electric vehicles for night trucking 916
Electric vehicles from central-station point of view, by C. Rummel.... 36
Electric vehicles in England, boosting 736
Electric vehicles make good showing in Chicago parade 404
Electric water-heater, a new 660-watt* 1237
Electric welding (E) 105
Electric welding, data on..... 915
Electric welding for track repairs... 885
Electrical accidents in Great Britain 335
Electrical apparatus uninjured by submersion during floods..... 234
Electrical appliance room in St. Louis, new 13
Electrical appliances for hotel (E)... 203
Electrical appliances in Germany, market for domestic..... 334
Electrical automobiles from British point of view..... 249
Electrical Boosters, Indianapolis..... 356
Electrical census figures for 1909.... 838
Electrical coal-mine accidents..... 531
Electrical companies win awards at Exposition of Safety and Sanitation 1267
Electrical congress in Argentina.... 204
Electrical Congress, International..5, 1250
Electrical construction for Panama-Pacific International Exposition* 818
Elecrical contractor and Society for Electrical Development 1016
Electrical contractor, some printed forms for, by E. M. Raetz*..... 917
Electrical contractors, accounting system for, by W. J. Ball*..... 75
Electrical contractors and Sheffield municipality 468
Electrical Contractors' Association of Boston, meeting of 1017
Electrical Contractors' Association of the State of Missouri, convention of* 219
Electrical Contractors' Association of Texas, convention of 1064
Electrical Contractors' Association of Wisconsin, summer meeting of... 219
Electrical contractors, effects of registration of 971
Electrical contractors' interests, guarding 971
Electrical contractors promote Liverpool exhibition 817
Electrical contractor's shop, increasing efficiency of, by William E. Rhodes 1164
Electrical Credit Association of Chicago, meeting of 1004
Electrical dangers, common 373
Electrical Development Association dissolved 652
Electrical displays in Louisville, Ky.. 459
Electrical engineers, mathematics for 884
Electrical engineers, prospects for, by E. W. Marchant 1022
Electrical engineers, remuneration of (E) 1001
Electrical equipment of automobiles. 854
Electrical equipment of gasoline automobiles 81
Electrical equipment of gasoline automobiles (E) 1002
Electrical equipment of gasoline automobiles, by Frank Conrad..... 1028
Electrical equipment of new Times Building, Los Angeles 388
Electrical equipment of Pacific Mills new print works department, by Theodore A. Bergen* 14, 71, 833
Electrical equipment of the Ryerson Physical Laboratory of the University of Chicago*..... 1210
Electrical exhibits in unique South American display of Chicago manufacturers* 688
Electrical-export reports, improved (E) 602
Electrical exports for August..... 756
Electrical exports for July..... 604
Electrical exports for June and for fiscal year 1912-1913..... 260
Electrical exports for May..... 62
Electrical exports for October..... 1202
Electrical exports for past fiscal year (E) 257
Electrical exports for September..... 1004
Electrical farm, another 957
Electrical gifts 1209
Electrical goods displayed in Pittsburgh 606
Electrical improvements for Port of London, England 606
Electrical industries, co-operation of allied 625
Electrical industry, co-operation in development of (E) 154
Electrical industry, future technical development in, by Dr. Charles P. Steinmetz 532
Electrical inspection, fees for (E).... 603
Electrical inspection, municipal 617
Electrical inspector for Louisville, Ky. 1112
Electrical inspectors, organization among, by Ben W. Clark..... 415
Electrical installation, control of, by municipality 816
Electrical installation in an industrial-school building* 122
Electrical laboratory of the Dresden Technical High School* 1269
Electrical League of Cleveland, Jovian Chapter, holds annual meeting.... 1250
Electrical machinery, International Commission's rating of 806
Electrical machinery, ratings for (E) 802
Electrical machinist wanted 136
Electrical manufacture in Germany at high tide 188
Electrical men meet at camp co-operation 405, 532
Electrical power transmission system for Panama Canal Zone*..... 328
Electrical record of heart beats*.... 543
Electrical requirements in rubber trade, by C. A. Kelsey..... 29
Electrical resistance of magnetized graphite 585
Electrical service, associating, with small costs (E) 306
Electrical show, Buffalo 654
Electrical show, New York*..530, 710, 827
Electrical specialties, developing (E). 1051
Electrical Supply Jobbers' Association, quarterly meeting of 1069
Electrical symbols (E) 802
Electrical Transmission Committee, Ohio Electric Light Association.. 184
Electrical work in large hotel..... 774
Electrical work in modern residence* 967
Electrical work in modern theater*.. 864
Electrical work on large public bridge* 466
Electrical Workers, new officers for. 724
Electrically operated aerial cableway over Andes Mountains in Colombia 1232
Electrically operated anesthesia apparatus* 640
Electrically operated auto signal*.... 942
Electrically operated freight clearing house proposed for London..... 331
Electrically operated 75-mile aerial cableway in Himalaya Mountains 854
Electrically operated shovels*..... 159
Electrically seasoned timber 516
Electrician wanted, city 4
Electricians, home for disabled 606
Electricity and industrial diseases (E) 1152
Electricity and modern warfare (E). 403
Electricity and safety movement (E). 1098
Electricity, encouraging use of*..... 507
Electricity in automobile manufacturing* 559, 607
Electricity in broom manufacturing*. 7
Electricity in canning factories*..... 711
Electricity in cement works*..... 359
Electricity in cord and rope mills*.. 1155
Electricity in cotton-seed oil mills, by W. L. Southwell*..... 911
Electricity in department stores*..... 205
Eletricity in garages 1057
Electricity in glass plants* 759
Electricity in hardware manufacturing* 1101
Electricity in harness manufacturing* 807
Electricity in hospitals* 1053
Electricity in irrigation for intensive farming, by D. R. Palmquist*.... 959
Electricity in jewelry manufacturing* 311
Electricity in manufacture of trunks and suit cases* 509
Electricity in modern shoe factory*.. 407
Electricity in piano factories* 263
Electricity in salt mines* 655
Electricity in show-case manufacturing* 1203
Electricity in soap manufacturing* .. 63
Electricity in the store 1161
Electricity in zinc mining* 111
Electricity, new applications of, as adjunct to new business, by F. C. Caldwell 165
Electricity on farm, by John C. Parker 36
Electricity on poultry farm, by Albert H. Bridge 1125
Electrics, Edison on 504
Electrics for Christmas delivery 1258
Electrics for 1914—advanced models*. 697
Electrics increasing in New York... 54
Electrification around Havana, Cuba. 1071
Electrification, Canadian Pacific 230
Electrification, Chicago smoke and, by W. F. M. Goss..... 433
Electrification, Denver & Rio Grande 1081
Electrification, improvements in New Haven (E) 706
Electrification in Berlin 188
Electrification in Italy 452

Electrification in Switzerland, ...928, 979
Electrification, mountain railway, by A. H. Babcock 628
Electrification, Norwegian railway .. 110
Electrification of Canadian Pacific... 853
Electrification of London & South Western Railway* 1031
Electrification of New York, New Haven & Hartford Railroad (E).... 258
Electrification of Norfolk & Western Railroad 378
Electrification of Spanish railroad.... 157
Electrification of Swedish railway ... 309
Electrification, Pennsylvania 653, 781
Electrolysis of aqueous solutions of simple alkaline cyanides 583
Electrolysis of cyanide solutions, by Edward F. Kern 583
Electrolytic corrosion of iron (E).... 58
Electrolytic corrosion of iron in soils, by Burton McCollum and K. H. Logan 25
Electromagnetic separation, recovering iron from steel-plant waste by* 1283
Electromagnetic waves employed in radiotelegraphy, nature of 733
Electromagnetic waves in atmosphere 780
Electrons and electric current..... 288
Electroplating lead and brass 527, 621, 729, 823
Electrostatic oscillograph 1190
Electrotechnical Commission, International 652, 806
Electrotherapeutic congress 508
Elevator controller* 542
Elevator controller parts, cabinet for* 437
Elevator mechanism, direct-drive dumb-waiter* 189
Elevator service, control equipment to provide safety insurance in*... 787
Elevators, electric, as desirable central-station load* 365
Elimination of single-braid wire 1016
Elkhart plant increases capacity..... 69
Emergency installation of electric service 1010
Emergency lights in theaters, control of 975
Emphasizing weak points in mechanical drive (E) 3
Empire State Gas and Electric Association, annual meeting of.....557, 737
Enamel for outdoor lighting fixtures, white reflecting* 1085
Encouraging use of electricity (E)... 507
Engine, gas, ousting the (E)..... 851
Engine, Nordberg uniflow* 339
Engine, steam, and electric motor in parallel 569
Engineering manual 826
Engineering society, general (E) 58
Engineers, electrical, prospects for, by E. W. Marchant..... 1022
Engineers, electrical, remuneration of (E) 1001
Engineers' Society of Western Pennsylvania, Mechanical Section 1178
Engines, Diesel, operation of..... 681
Engines, Diesel, to be manufactured by McIntosh & Seymour Corporation 1087
Engines, gas, method of cooling*..... 990
English power stations, fires in..... 334
Ensign electric calculating machine*. 1083
Enthusiasm for the work (E)..... 554
Ewing, Thomas, Jr.*..... 109
Examination for dynamo tender..... 404
Examination for electrometallurgist.. 406
Examination for radio inspector..... 226
Examinations, civil service 576, 822, 908, 1222
Exhausting gases in garage..... 70
Exhibit, a noteworthy lighting 1276
Exhibits at Panama exposition..... 60
Exide battery for fast hydroplane.... 485
Experimental generating plant in Germany 80
Export reports, improved electrical (E) 602
Exports, electrical, for August..... 756
Exports, electrical, for July..... 604
Exports, electrical, for June and for fiscal year 1912-1913 260
Exports, electrical, for May..... 62
Exports, electrical, for October 1202
Exports, electrical, for past fiscal year (E) 257
Exports, electrical, for September..... 1004
Exposition at Japanese capital..... 406
Exposition, Pittsburgh 805
Extension of Transvaal power plants. 70
Eye, efficiency of, under different systems of illumination (E)..... 650
Eye, efficiency of, under different systems of lighting (E)..... 449
Eye, efficiency of, under different systems of lighting, by C. A. Ferree* 479
Eyes, protection of, from excessive radiation 1179

F

Factories and workships, illumination of 134
Factory lighting, by M. H. Flexner and A. O. Dicker..... 678
Facts and factors of 5,150-kilowatt central station 661
Fair field for broader market, by Ernest Freeman..... 331
Faith that moves mountains (E)..... 354
Fallacies, some electrical..... 522
Fan billboards in Toronto*..... 213
Fan campaign, St. Louis..... 119
Fan equipment for campaign car.... 70
Fan motor, changing, to lower frequency 927, 1019
Fan, multiblade*..... 738
Fan, novel and artistic*..... 488
Fan sales, Denver Company boosts.... 214
Fancieve cast elbows for metal molding* 144
Fans, electric, popular in Ceylon..... 518
Fans, railroad coach*..... 435
Faraday Society 1276
Fargo, N. D., utility development at 863
Faribault (Minn.) plant, growth of.... 1056
Faries desk and piano lamps*..... 739
Farm, another electrical..... 957
Farm, electricity on, by John C. Parker 36
Farming, use of electricity in irrigation for, by D. R. Palmquist*.... 959
Farr, William*..... 277
Fatality, peculiar 308
Fault finder, a convenient* 1264
Faultfinder, Peerless improved*..... 1085
Faulty wiring 1111
Federal regulation of hydroelectric companies proposed..... 1117
Federal Sign System executives and managers, annual conference of*.. 390
Federation of Trade Press Associations, convention of*..... 635
Feeder regulators, by A. D. Fishel... 633
Fees for design patents..... 1072
Fees for electrical inspection (E).... 603
Ferrochrome electrically produced..... 1038
Fessenden verdict reversed..... 478
Fiber conduit for installation in crucible-steel plant..... 592
Field poles, testing motor..... 523
Fifty million dollars for English telephones 157
Filing transmission-line data (E).... 1099
Filling countersunk bolt holes..... 472
Financial outlook, by Frank Vanderlip 533
Financing of public utilities, by H. P. Wright 780
Fire-alarm boxes, New York City to have new 1263
Fire alarm for Cambridge, Mass..... 523
Fire-alarm offices, common-battery equipment for..... 431
Fire-alarm system, Knight public, by E. E. Moore*.....168 215, 274
Fire alarm, wiring*..... 325
Fire and police telegraph systems in small and medium-sized cities, operating, by A. C. Farrand..... 430
Fire at Hot Springs, Ark..... 586
Fire at Sault Ste. Marie..... 485
Fire at Spirit Lake, Iowa..... 261
Fire nearly destroys Massachusetts plant 308
Fire-pump motors, control of alternating-current, by Harrison Pierce Reed* 540
Fires, central-station..... 925
Fires in central stations, causes of, and their remedy..... 368
Fires in English power stations..... 334
Fires, overhead lines at (E)..... 401
Fires, power-plant..... 367
First-aid preparedness (E)..... 505
First public telegraph office*..... 88
Fish wire, convenient form of*..... 376
Fishing circuits in finished houses.... 524
Fishing side walls, device for..... 1018
Fishing wires in fixture arms*..... 973
Fishing wires in fixtures* 1264
Fishing wires in walls and partitions 973
Fishing wires into conduits..... 619
Fishing wires to partition-wall outlets 820
Fishing with a drill..... 1216
Fittings, latest approved 96, 144, 392, 544, 593, 888, 1040, 1136, 1190, 1285
Fixture arms, bending*..... 923
Fixture arms, fishing wires in*..... 973
Fixture Dealers' Association formed.. 500
Fixture, hanging a 1264
Fixture, hanging large..... 775
Fixture outlets, loom for combination* 1266
Fixture wire, good way to handle*... 1016
Fixtures, changing old..... 78
Fixtures, Cutter Idealite*..... 786
Fixtures, fishing wires in* 1264
Fixtures, hanging heavy..... 726
Fixtures, hanging short-stem*....126, 376
Fixtures on side walls, installing.... 619
Fixtures, testing 1216
Fixtures, wiring*..... 376
Fixtures, wiring chain..... 525
Flame-arc lighting for Monroe Street, Chicago 709
Flame-carbon arc lamps, by T. J. Pace 35
Flatiron, Abesto automatic electric*.. 342
Flatiron, connection for*..... 175
Flatiron specifications, navy..... 877
Flatirons, cord holder for electric*.... 886
Flat rates for apartment houses.... 657
Flexible conductors, soldering ends of 571
Flexible conduit in brick walls..... 974
Flexible control of lamps..... 321
Flexible tubing, cutting..... 278
Floods, electrical apparatus uninjured by submersion during..... 234
Floor plugs, special wiring for*..... 973
Floor push 1018
Flow meters, improved*..... 238
Folding machine, rapid*..... 687
Forbes electric water sterilizer*..... 340
Foreign markets for electrical wiring supplies and appliances 1263
Forest lands, trespass on..... 1071
Forest Products Exposition..... 854
Formation and growth of National Electrical Contractors' Association 571
Forming storage-battery plates..... 423
Formulas for flux for solder..... 1263
Fort Wayne, Ind., sign ordinance in.. 863
Forward movement, the (E)..... 1200
Foundation washers, wrought-iron plate, for electric machines* 1261
Franchise for Lexington (Ky.) Company 613
Franchise rates, raising..... 1071
Franchise values, by William M. Wherry, Jr..... 825
Franchises (E)..... 155
Free tungsten renewals in New York 109
Franchises, by James V. Oxtoby..... 185
Freight bill accounting, by Albert S. Scott 670
Freight clearing house proposed for London, electrically operated..... 331
Freight rates on San Diego exhibits 817
Frequency-changer sets, Westinghouse synchronous* 743
Frequency changers, operation of, by N. E. Funk..... 30
Friction losses in steam pipes..... 734
Fruit cars, pre-cooling of refrigerator 40
Fuel, solid, liquid and gaseous..... 732
Furnace, electric zinc, by P. E. Peterson 584
Furnace, possible applications of electric, to western metallurgy, by Dorsey A. Lyon and Robert M. Keeney 583
Furnace, Rennerfelt arc, for producing electric steel 290
Furnace, Stassano electric, in Southern California*..... 1081
Furnaces, electric, for steel refining.. 1230
Furnaces, induction, in India, increasing use of aluminum creates demand for..... 262
Fuse, omission of neutral..... 724
Fuses, device for testing*..... 376
Fuses for 66,000 volts, substation*.... 292
Fuses, plug, renewal of..... 1019
Fuses, use of approved, reduces cost of insurance..... 19
Fusing of sign-lighting transformers, proper 1116
Future technical development in electrical industry, by Dr. Charles P. Steinmetz 532

G

Garages, electricity in 1057
Garage for Louisville Gas & Electric Company 54
Garage, model electric* 497
Garage, Vancouver central station opens truck 69
Garage, wiring scheme for new type of, by H. G. Wilson*..... 324
Gas engine, ousting the (E)..... 851
Gas engines, method of cooling*..... 990
Gas interests to raise $300,000 to fight electricity 1220
Gas pipes, insulation from, at gas-electric outlets 975
Gavel for Illuminating Engineering Society, historic* 537
General Electric Company, new office building of, at West Lynn..... 1284
General Electric Company's Pittsfield plant publishes "safety" information for employees 736
General Electric to build new plant.. 6
General engineering society (E)..... 58
General Vehicle Company develops new 1,000-pound shaft-drive electric wagon* 904
Generator installed at Marion, N. J., large alternating-current 1082
Generator, new 4,400-kilowatt direct-current* 1087
Generators, Westinghouse water-wheel* 790
German central station, enlargement of 984
German electric railway statistics.... 110
German electrical manufacture at high tide 188
German manufacturers will also make high-candle power half-watt tungsten lamps 262
German wireless telegraphy in Africa 262
Germany, market for domestic electrical appliances in..... 334

Glare from paper, by M. Luckiesh.... 480
Glasgow exhibition of electrical devices 308
Glass cutter, "Red Devil" 189
Glass plants, electricity in* 759
Glassware, characteristics of incloshing, by V. R. Lansingh..... 680
Globes, effect of surrounding, on incandescent lamps 756
Glover, Benjamin H.* 805
Gold, depreciation of (E) 601
Gold from sea water 1020
Golden Potlatch festival* 333
Goldschmidt wireless tests 60
Goss, W. F. M.* 61
Gould starting, lighting and ignition batteries for gasoline-driven cars* 234
Government in relation to business.. 532
Government institutes suit to break up Bell telephone merger..... 204
Government ownership of telegraph and telephone lines under consideration 1202
Government ownership of telephones. 804
Government to sell lumber and cedar poles in State of Washington.... 309
Graphic meters, by G. W. Gratton.. 34
Graphical chart of power costs, by J. P. Ripley* 1058
Graphite, electrical resistance of magnetized 585
Graphometer* 149
Grinder, double-spindle* 885
Grinder, new electric* 391
Grounded system, high-tension distribution by means of one-wire, by J. A. Cavanaugh 427
Grounding of electrical systems, notes on, by H. P. Liversidge* 416
Grounds, unbalancing effect of, by R. S. Brown* 327
Gschwindt, Adam* 309
Guaranteed wiring 663
Guaranteed wiring (E) 354
Guaranteed wiring, discussion of 1165
Guarding electrical contractors' interests 971
Guide to changes in National Electrical Code 1064

H

Half-watt lamp 777
Half-watt tungsten lamps being sold in Germany 987
Hammer, unique motor drive for helve* 292
Hanger, new non-drop, for arc lamps* 91
Hanger, Thompson high-voltage series cutout* 293
Hangers, installation of 325
Hanging a fixture 1264
Hanging short-stem fixtures* . 126, 376
Hardware manufacturing, electricity in* 1101
Harness manufacturing, electricity in*.. 807
Hart & Hegeman outing 688
Hatfield mercury switch tubes*..... 639
Headlights, automobile 1020
Heart beats, electrical record of*..... 543
Heat resistivity of graphite and carbon, by J. W. Richards 583
Heating and cooking, domestic electric 734
Heating and cooking, electric, at Shanghai, China 309
Heating apparatus, electric, by H. O. Swoboda 806
Heating, electric, by John S. Staudt .. 685
Heating in Boonville, Ind., central.... 709
Heating plants, small central 779
Heating system extended at Louisville, Ky., steam..... 768
Her boltless bracket* 886
High-class conduit job in carpet store, by H. G. Wilson* 614
High-frequency and high-tension tests 81
High-frequency ammeters 773
High record output of Minneapolis General Electric Company 1259
High-tension disconnecting switches of new design* 1234
High-tension distribution by means of one-wire grounded system, by J. A. Cavanaugh 427
High-tension line, danger from stream of water striking 22
High-voltage surges (E) 1098
High-voltage testing and testing apparatus, by F. C. Loring* 132
Hint in soliciting power business(E). 154
Hoist, largest in America 1189
Hoist used as scraper, motor-driven* 295
Hoisting systems, mine, European electrical* 1184
Home for disabled electricians 606
Home, indirect lighting of 1221
Hong Kong Electric Company prosperous 12
Horsepower, total mechanical, in United States 979
Hospital lighting 1267
Hospital lighting, by William S. Kilmer 679
Hospitals, electricity in* 1053
House-wiring campaign at Rockford, Ill. 768
House-wiring campaign at Toledo.... 914
House-wiring campaign in Louisville.. 1260
House-wiring campaign in Manchester, N. H. 768
House-wiring campaign in St. Louis,. 862
House-wiring rates in Muncie, Ind... 863
House, working for (E) 705
Hotel, electrical appliances for (E).. 203
Hotel, electrical work in large 774
Hot Springs (Ark.) fire 586
How the Society for Electrical Development will help the individual, by Frank E. Watts 406
Human equation, by S. G. McMeen.. 184
Hunt storage-battery industrial truck* 1038
Hydroelectric companies, proposed Federal regulation of 1117
Hydroelectric development on Tennessee River* 1005
Hydroelectric energy, cost of (E).... 153
Hydroelectric plant for electric smelting in New Caledonia..... 296
Hydroelectric plant for paper mill.... 606
Hydroelectric plant in England..... 966
Hydroelectric power for Oroville, Cal. 358
Hydroelectric project approved, Prussian government 137
Hydroelectric project, Bridge River.. 127
Hydroelectric project, Coon Rapids... 564
Hydroelectric project in Tasmania... 283
Hydroelectric project, Spanish..... 330
Hydroelectric rules and regulations and the National Electrical Code, by H. F. Strickland 35
Hydroelectric station, new Swiss..... 262
Hydroplane, Exide battery, for fast.. 485
Hylo lamps, unique demonstration of. 863

I

Ice loading on transmission lines, by C. F. Uhden 628
Ice-making and refrigeration, central-station power for..... 812
Iceland's water power, development of 287
Ideal Home Exhibition..... 654
Illinois commission news..... 23
Illinois Commission revises overhead power line crossing rules..... 606
Illinois Northern Utilities Company to serve Harvard, Ill..... 368
Illinois State Electric Association, convention of 556, 669
Illuminating a drafting room, by J. A. Hoeveler and Hugh D. Butler*.... 929
Illuminating engineering in kitchen*.. 1080
Illuminating engineering laboratory of General Electric Company..... 679
Illuminating Engineering Society, Chicago Section.....6, 804, 1023, 1221
Illuminating Engineering Society, convention of.....6, 227, 358, 674
Illuminating Engineering Society, convention of (E)..... 649
Illuminating Engineering Society, historic gavel for* 537
Illuminating Engineering Society, joint meeting of, with Fourth International Congress on School Hygiene 478
Illuminating Engineering Society, meeting of..... 1072
Illuminating Engineering Society, new officers of..... 110
Illuminating Engineering Society, Pittsburgh Section 1274
Illuminating Engineering Society, Philadelphia Section.....4, 736
Illuminating engineers to meet with American Gas Institute..... 654
Illumination, coming meetings on.... 908
Illumination, efficiency of eye under different systems of (E)..... 650
Illumination for industrial plants, modern, by Harry C. Spillman*.. 474
Illumination of class-rooms, by James Kerr 481
Illumination of factories and workshops 134
Illumination of schools and libraries. 332
Illumination of schools and libraries (E) 353
Illumination of street cars, by L. C. Porter and V. L. Staley..... 1023
Illumination of Sunday-school room, by Edwin F. Kingsbury..... 677
Illumination, progress report on, by Ward Harrison and H. H. Magdsick 673
Illumination, record of art of (E).... 107
Illumination, relation of, to ocular hygiene, by E. M. Alger..... 478
Illumination, report of Association of Railway Electrical Engineers Committee on 876
Illumination, school..... 478
Illumination, some interesting construction for street*..... 519
Illumination, street-car, improvement of (E) 1003
Illumination, street-railway, by S. G. Hibben ..... .675
Importance of accident prevention in administration of compensation law, by Richard L. Drake..... 427
Importance of magnetic quality (E). 554
Improved flow meters* 228
Improvement of street-car illumination (E)..... 1003
Improvements in New Haven electrification (E) 706
Improvements in Packard transformers* 638
Improvements in police signaling boxes, by Price T. Patton..... 430
Improvements in street-lighting service 62
Improving a radio installation, by E. F. Lathrop* 469
Improving electric power exhibits (E) 906
Incandescent-lamp advances (E)..... 650
Incandescent-lamp manufacture, improvements in, by E. J. Edwards. 674
Incandescent lamps, current developments in manufacture of, by John W. Howell 676
Incidental improvements in electric lighting (E)..... 1050
Increasing the efficiency of electrical contractor's shop, by William E. Rhodes 1164
Indeterminate-permit features of Indiana public utility law..... 682
India, electrically lighted show windows and signs in..... 776
Indiana commission news..... 473
Indiana Electric Light Association, convention of 556, 681
Indiana public utility law indeterminate-permit features of..... 682
Indianapolis Electrical Boosters..... 356
Indirect and semi-indirect lighting, by J. R. Cravath..... 424
Indirect lighting by arc lamps, by Justus Eck 518
Indirect lighting of Aberdeen (S. D.) National Bank* 1037
Indirect lighting of banks*..... 742
Indirect lighting of the home..... 1221
Indirect lighting, some interesting installations of, by Leonard V. James* 476
Industrial Electrial Engineering Society, Detroit, meeting of..... 556
Industrial plants, modern illumination for, by Harry C. Spillman*..... 474
Industrial substations, by H. P. Liversidge 782
Industrial use of synchronous motors, by J. C. Parker..... 28
Industrial welfare and efficiency convention to be held in Philadelphia 604
Inspection Bureau, Chicago, celebrates anniversary 1215
Inspection, fees for electrical (E)..... 603
Inspection in Chattanooga free..... 125
Inspection in Louisville, Ky..... 222
Inspection, municipal electrical..... 617
Inspection of outside wiring in Chicago 524
Inspection, Underwriters provide British 218
Inspector and the contractor..... 124
Inspector, electrical, for Louisville Ky. 1112
Inspectors use motorcycles..... 854
Instability of electric circuits, by Charles P. Steinmetz..... 932
Installing service pipes..... 278
Installing services* 820
Installing 12,000-ampere switchboard in isolated plant*..... 319
Installation, electrical, in a laboratory* 1210
Installation of rigid-conduit work in buildings of concrete construction, by G. N. McCarthy*.....720, 769, 814
Installation of wireless apparatus.... 667
Institute of Radio Engineers, meeting of 508, 976, 1183
Instruments, portable combination alternating-current and direct-current indicating* 94
Insulated and bare copper and aluminum cables for transmission of electrical energy, with special reference to mining work, by Burkwood Welbourn 283
Insulating joints, Wirt drawn-steel*. 1235
Insulating materials, the properties of (E) 1201
Insulating materials, thin, dielectric strength of, by F. M. Farmer.... 1230
Insulation from gas pipes at gas-electric outlets 975
Insulation for wire, special..... 126
Insulation, removing, from stranded conductors 573
Insulation resistance, the characteristics of, by S. Evershed* 1223
Insulator, new porcelain strain*..... 191
Insulators, new types of porcelain strain* 1234
Insurance Commitee, Ohio Electric Light Association 181
Integrating wattmeters with recording attachments, by H. S. Baker.... 34
Interborough 30,000-kilowatt turbo units* 434
Interborough traffic gains..... 230
Interesting installation of exposed-conduit wiring* 1012
Interesting side light on cost of membership in the Society for Electrical Development, by W. E. Robertson 228

Interests of Bell system and the public (E) 403
Inter-insurance 685
International Association of Municipal Electricians, convention of ..323, 430
International Congress of Refrigeration 358, 605
International Electrical Congress...5, 1250
International Electrotechnical Commission, meeting of.....652, 806
International Marconi wireless developments 958
International Photometric Commission, meeting of 558
Interruption of service, keeping check on 570
Interstate Commerce Commission.... .....127, 176, 378, 620, 1265
Interstate Light & Power Company, business increase of 1011
Inventory, small dealers' (E)..... 402
Inventory, small dealers', by Richard E. Smith 414
Iowa State College, new courses at.. 428
Iron conduit for alternating-current lines 218
Iron, electrolytic corrosion of (E).... 58
Iron in soils, electrolytic corrosion of, by Burton McCollum and K. H. Logan 25
Iron-loss voltmeter* 239
Iron-ore smelting in Sweden electric 537, 984
Iron, recovering, from steel-plant waste by electromagnetic separation 1283
Irons, electric, Denver argument for 368
Irrigating Kansas lands..... 778
Irrigation and generation of electricity, large reservoir for..... 984
Irrigation by electric power near Stockton, Cal. 916
Irrigation for intensive farming, use of electricity in, by D. R. Palmquist* 959
Irrigation outfits, motor-driven*..... 237
Irrigation, pumping for (E)..... 954
Isolated plant, equipment of modern* 1060
Italian electric plant, new..... 605

J

J-M Fyro extinguisher for preventing the spread of flames*..... 1238
Japanese capital, exposition at..... 406
Jewelry manufacturing, electricity in* 311
Jobber as economic factor in distribution of supplies, by A. A. Gray.. 1069
Jobbers, analyzing accounts of, by Norman E. Webster..... 1069
Jobbers' co-operative methods, by W. J. Keenah 626
Jobbers visit Chattanooga, southern electrical 854
Join the Society for electrical development (E) 1199
Joists in finished houses, how to see between 973
Jovian campaign for subscription to Society for Electrical Development time limit extended..... 576
Jovian campaign to assist Society for Electrical Development 604
Jovian Chapter, Electrical League of Cleveland, holds annual meeting.. 1250
Jovian Electrical League of Southern California 606
Jovian League of Chicago..... .....837, 1004, 1052, 1154, 1250
Jovian rejuvenation, Chicago has fine* 1222
Jovian rejuvenation in St. Louis..... 737
Jovians, celebration by Texas..... 558
Jovians, meeting of Louisville..... 1004
Jovians of Chicago meet..... 908
Jovians of Pittsburgh dine 1280
Jovians of St. Paul will decorate Christmas trees 1164
Jovians organize in Nashville, Tenn.. 483
Jovians, prizes for, in membership campaign of Society for Electrical Development 404
Jovians, rejuvenation of Philadelphia 736
Jovians unite with Electrical League 736
Jupiter, successful test of..... 756

K

Kahn law (E)..... 1153
Kansas City Electric Club..... 1016
Kansas City (Kan.) electric plant.... 654
Kansas contractors meet..... 774
Kansas Gas, Water, Electric Light and Street Railway Association, convention of 357, 508, 777
Keeping check on interruption of service 570
Keeping concrete out of the pipe.... 1216
Keeping interiors lighted for advertising value (E) 706
Keeping wires from tangling*..... 665
Kentucky Section, National Electric Light Association 964
Keokuk power used at St. Louis..... 70
Kern River projects, new..... 654
Key socket, new 660-watt..... 687
Kicker, American, by D. B. South.... 425
Kinking, preventing wires from..... 525
Kite flying, accident from..... 557
Knauber, Alex M.*..... 470
Knife, electrician's 775
Knife, keeping sharp..... 571
Knight public fire-alarm system,... by E. E. Moore*.....168, 215, 274
Knights Templar, thirty-second triennial conclave of*..... 385
Knob, protecting split..... 923
Kuhlman outdoor transformers*..... 591
Kuhn reorganization planned..... 406
Ky-Ce-Lain, new white reflecting enamel for outdoor lighting fixtures* 1085
Kyle line of tungsten fixtures new*... 484
Kyle line universal tungsten fixtures* 687

L

Laboratory, electrical, of the Dresden Technical High School* 1269
Laboratory, Technology research.... 128
Laboratory, the electrical installation in a* 1210
La Crosse Gas & Electric Company wins prize* 813
Lake Spalding dam completed..... 1172
Lamp advances, incandescent (E)... 650
Lamp, bracket, with long swing*.... 1017
Lamp, British patent for renewable metal-filament 738
Lamp changer* 1264
Lamp Committee, Pennsylvania Electric Association, report of..... 631
Lamp, evolution of 677
Lamp for circuit, proper*..... 335
Lamp for circuit, proper, by Fred Benson 670
Lamp, half-watt 777
Lamp, lighting, from distance..... 1167
Lamp manufacture, improvements in incandescent, by E. J. Edwards.. 674
Lamp, Mazda half-watt..... 536
Lamp, method of starting mercury-vapor 733
Lamp, neon tube, by Georges Claude. 677
Lamp, new wall-bracket* 485
Lamp, nitrogen-filled (E)..... 753
Lamp prices, reduction in, by Boston Edison Company 315
Lamp, tungsten, relation of efficiency and life of..... 927
Lamp, Wico permissible electric safety* 788
Lamp works, combination Spanish... 80
Lampposts, decorating 565
Lamps, arc, as substitutes for safety gates 1004
Lamps, arc, rewinding coils of..... 1063
Lamps, board for display of*..... 523
Lamps, drawback on electric..... 539
Lamps, effect of surrounding globes on incandescent 756
Lamps, efficient test..... 78
Lamps, Faries desk and piano*..... 739
Lamps, fastening large, in place..... 1018
Lamps, flame-carbon arc, by T. J. Pace 35
Lamps, flexible control of..... 321
Lamps for entrance lanterns, quartz-tube* 745
Lamps, incandescent, current developments in manufacture of, by John W. Howell..... 676
Lamps, nitrogen-filled, by Irving Langmuir and J. A. Orange..... 781
Lamps on brackets, outside*..... 126
Lamps on three-phase circuit, connecting* 775
Lamps, portable electric mine, by H. H. Clark 482
Lamps, quartz, water sterilization by 928
Lamps, unique demonstration of Hylo 863
Land Grant College Engineering Association, meeting of..... 1072
Lantern needed (E)..... 449
Lantern, novel raft*..... 437
LaSalle Opera House, Chicago, electrical installation in*..... 864
Latest approved fittings..... 96
144, 392, 544, 593, 888, 1040, 1136, 1190
Lathe, motor-driven geared head*.... 1088
Lathes, motor-driven heavy-duty*... 1034
Laundry, electrically operated, analysis of power conditions in*..... 1207
Laurent-Cherry pulley blocks*..... 984
Law, Kahn (E)..... 1153
Lead and brass, electroplating..... .....621, 729, 823
Lead cables, corrosive action on..... 184
Lead, deposits of, from lead-acetate solutions 584
Leading-in wires, cooling effect of, by T. H. Amrine..... 675
Leatherheads on nails, device for stringing* 664
Lecture service, central-station (E).. 905
Lectures at Brooklyn Institute..... 804
Lecturing by Boston Edison Company, extensive electrical..... 70
Legal notes.....128, 873, 1071
Legislation affecting public utilities, by H. V. Bozell..... 881
Legislation affecting public utilities, by Norwood W. Brockett..... 529
Le Maison Electrique..... 654
Lewis Institute Evening School, new engineering courses at 1267
Lexington (Ky.) Company, franchise for 613
Lexington, Ky., new office building in 719, 1258
Libraries and schools, illumination of 332
Libraries and schools, illumination of (E) 353
Licenses for wiremen in New Zealand 1064
Licenses in Minnesota, enforcing..... 125
Licensing wiremen in Australia 1262
Life hazard 820
Light, educating public in use of.... 459
Light for horse-shoeing* 1264
Light in school rooms, practical methods of testing, by George Fitz.... 481
Light production, some theoretical considerations of, by W. A. Darrah 676
Light, shade, form and color, psychological values of, by F. Park Lewis 675
"Lighted Way" in Brookline, Mass... 1010
Lighting and heating exposition, Russian 585
Lighting applications, developing special (E) 850
Lighting, Boston street..... 177
Lighting by arc lamps, indirect, by Justus Eck 518
Lighting, church* 855
Lighting, church, by R. B. Ely..... 677
Lighting contract, Portland, Ore. 1010
Lighting, Denver offered cheaper..... 411
Lighting, direct, in Ford service stations* 1134
Lighting, efficiency of eye under different systems of (E)..... 449
Lighting, efficiency of eye under different systems of, by C. A. Ferree* 479
Lighting, electric, for motor cars, by Alfred E. Waller..... 1028
Lighting, electric, incidental improvements in (E) 1050
Lighting exhibit, a noteworthy..... 1276
Lighting, factory, by M. H. Flexner and A. O. Dicker..... 678
Lighting fixtures, porcelain and pottery* 487
Lighting, flame-arc, for Monroe street, Chicago 709
Lighting for street cars, Toledo Railways adopts improved*..... 840
Lighting, hospital, by William S. Kilmer 679
Lighting in Chicago, municipal street (E) 451
Lighting in Chicago, park and boulevard* 577
Lighting in Chicago, public street*.. 453
Lighting in large city, public park and boulevard (E) 555
Lighting in Louisville, Ky., street and sign* 1011
Lighting in Louisville, park..... 296
Lighting in Louisville, street..... 761
Lighting, indirect and semi-indirect, by J. R. Cravath..... 424
Lighting, indirect, of the home..... 1221
Lighting, indirect, some interesting installations of, by Leonard V. James* 476
Lighting, kitchen* 1080
Lighting lamp from distance..... 1167
Lighting, London street..... 406
Lighting, modern methods of, by Albert L. Pearson* 84
Lighting of Aberdeen (S. D.) National Bank, indirect* 1037
Lighting of banks, indirect*..... 742
Lighting of Cleveland Art Loan Exposition* 1177
Lighting of colored surfaces, by Bassett Jones 1119
Lighting of interiors for advertising value (E) 706
Lighting of motorcycle track at Newark, N. J. 124
Lighting of show windows, by H. B. Wheeler 679
Lighting of stores by gas, by J. E. Philbrick 678
Lighting outfit for circus, portable electric* 294
Lighting, overhead, in schools, by D. W. Weaver 480

Lighting, physics of..... 1119
Lighting picture galleries (E)..... 1153
Lighting plant in small town management and operation of electric, by E. G. Robinson..... 517
Lighting plant, Kansas City (Kan.).. 654
Lighting plant, Pittsfield (Mass.) considering municipal 653
Lighting plants for Cuba, electric.... 186
Lighting-rate war in Madrid..... 70
Lighting, rates for street in Mayfield, Ky. 768
Lighting rates lowered at New Castle, Pa. 915
Lighting rates lowered in Omaha.... 412
Lighting rates reduced in Ayer, Mass. 485
Lighting rates reduced in New London, Conn. 214
Lighting rates reduced in St. Louis. 213
Lighting, store, distinctive, by A. L. Powell and C. L. Law..... 678
Lighting, street, by D. W. Hayes.... 428
Lighting, street, by Preston S. Millar and Norman D. Macdonald.. 632
Lighting, street, by S. B. Cushing... 670
Lighting, street, discussed at Pittsburgh joint meeting 1274
Lighting, street, on dark days (E).... 1249
Lighting tables for 1914, street..... 1154
Lightning arresters and transformers, by J. W. Buchanan..... 670
Lightning protection for aerial lines 228
Lightning rods 179
Lignite production, North Dakota... 135
Limiting size of steam-turbine units.. 1268
Lincoln squirrel-cage motors*..... 839
Line extensions, principles governing central stations in, by Alexander Macomber 623
Line-voltage regulation, synchronous motor for* 926, 1019
Lineman's torch, compact* 291
Linotype and intertype machines, new motor drive for*..... 589
Little Falls, N. Y., white way for... 931
Little Rock, Ark., slogan sign for*.. 813
Load for meter testing 1263
Local organizations (E) 106
Lock sockets, Best* 1130
Locomotive, first Diesel 1038
Locomotives, 50-ton direct-current, for British Columbia freight service* 388
Locomotives for Connecticut company, 45-ton electric*..... 1036
Locomotives for New York Central terminal, six powerful..... 941
Locomotives in Alaska, mining*..... 1086
Locomotives, mine, largest*..... 792
Logging by electricity, by E. J. Barry 630, 717
London & South Western Railway electrification of* 1031
London commercial motor vehicle exhibition 1030
London electricity supply..... 1222
Loom clamps required in Detroit..... 1263
Loom for combination fixture outlets. 1266
Lynn Section, American Institute of Electrical Engineers 1154
London, England, electrical improvements for Port of..... 606
London street lighting..... 406
London's overhead wires 386
Long Acre Light & Power Company appeal sustained by high-court.. 1276
Long reliability run of English electric vehicle 108
Long Sault dam opposed..... 508
Lord Kelvin, memorials to 228
Los Angeles aqueduct completed..... 925
Los Angeles, White Way in..... 459
Lotschberg tunnel opens..... 131
Louisville Company to supply New Albany, Ind. 1057
Louisville Gas & Electric Company, new trademark of 1259
Louisville, house-wiring campaign in.. 1260
Louisville, Ky., change in service at 1107
Louisville, Ky., electrical displays in 459
Louisville, Ky., inspection in..... 222
Louisville, Ky., street and sign lighting in* 1011
Louisville, Ky., street lighting in.... 761
Louisville, new business at 1260
Low water in Vermont..... 422
Lubricant, another kind of..... 525
Lumber and cedar poles to be sold by Government in State of Washington 309
Lynn Section, American Institute of Electrical Engineers 758, 1052

M

McKenney & Waterbury Company outing 488
Machine shops, electric drive in, By Charles Fair 782
Machinery, International Commission's rating of electrical..... 806
Machinery, ratings for electrical. (E) 802
Magnetic quality, importance of (E) 554
Magnetic susceptibility, method of measuring 733
Magnets, lifting, design and use of, by B. E. Furnow..... 671
Magunna tuning-fork system for wireless work* 344
Maine commission news.....127, 326
Maintenance service for motor users, by G. D. Crain, Jr..... 931
Management and operation of electric light plant in small town, by E. G. Robinson 517
Management of commercial department, by C. A. McMicken..... 529
Manchester, England, new 100,000-kilowatt plant for..... 785
Manchester, N. H., house-wiring campaign in 768
Manual, engineering 826
Marconi apparatus, new..... 438
Marconi Company acquires Goldschmidt patents 654
Marconi contract abandoned by British government 60
Marconi contract ratified by British Parliament 332
Marconi interests secure Brazilian concession 606
Marconi wireless developments, international 958
Marconi wireless profits and progress 432
Marking tools, convenient way of.... 664
Martin rotary converter*..... 236
Maryland commission news..... .....620, 821, 924, 1265
Maryville, Ohio, street lighting in* 519
Massachusetts commission news,..... 23, 127, 223, 279, 326, 473, 526, 575, 620, 727, 776, 821, 924, 976, 1067, ...1118, 1168, 1265
Massachusetts Institute Electrical Engineering Society 756
Massachusetts, water power commission for 331
Materials not approved, promoting use of (E) 802
Mathematics for electrical engineers.. 884
Matthews, William N.* 909
Matthews, W. N., heads Jovian Order 804
Mazda half-watt lamp 536
Mazda lamp in mill illuminations.... 673
Meat-curing and tanning, electric.... 927
Mechanical characteristics of long spans, by A. R. Zahorsky*..... 288
Mechanical devices in accounting department, by Y. M. White*..... 514
Mechanical drive, emphasizing weak spots in (E) 3
Mechanical horsepower in United States, total 979
Melting points of some commercial copper alloys 1086
Memorial to wireless operators..... 604
Merchandising, electric-appliance, by W. G. Stetson 624
Merchandising, neighborhood*..... 565
Merchant, central station and electric truck, by F. Nelson Carle..... 898
Mercury-arc rectifier, control of..... 928
Mercury switch tubes, Hatfield*..... 639
Mercury-vapor lamp, method of starting 733
Mercury-vapor quartz lamp, by W. A. D. Evans 677
Meriden Electric Light Company, new power station of 83
Metal-filament lamp, British patent for renewable 738
Metal-mine accidents, electrical..... 606
Metallic beryllium 774
Metallic salts, effect of electric oscillations on 1183
Meter Committee, Ohio Electric Light Association 184
Meter records, time keeping and*.... 566
Meter testing in small town..... 318
Meter-testing station, Austrian..... 636
Meter-testing table at Albany, N. Y., electric* 191
Meters, British regulations respecting accuracy of 82
Meters, flow* 238
Meters for two-rate systems (E) 1249
Meters, graphic, by G. W. Gratton.. 34
Meters outside the building..... 178
Meters, tool convenient in*..... 820
Mexican project completed, large.... 62
Mexico Northern Power Company stops work 386
Mica, North Carolina produces most.. 528
Micarta* 95
Michigan commission news 421
Michigan constitution, public utilities as affected by new, by James V. Oxtoby 426
Michigan Section, National Electric Light Association, annual meeting of 424
Michigan Section, National Electric Light Association, Convention of (E) 402
Middle West Company, display-room car of* 13, 165
Mile, passing of, as unit of electrical measurement 724
Milk, sterlization of 214
Mill illuminations, Mazda lamp in.. 673
Milling machine, constant-speed*.... 1039
Mine-hoisting systems, improved European electrical* 1184
Mine lamps, portable electric, by H. H. Clark 482
Mine locomotives, largest ever built* 792
Mine pump for operating on inclines, motor-driven* 192
Mine pumps, motor drive for*..... 964
Mines, power supply for Rand gold.. 118
Miniature electric aeroplane*..... 240
Mining show and annual convention of American Mining Congress, 108, ...356, 756
Mining work, insulated and bare copper and aluminum cables for transmission of electrical energy, with special reference to, by Burkewood Welbourn 283
Mining, zinc, electricity in*..... 111
Minneapolis, central-station progress at 966
Minneapolis General Electric Company, high record output of 1259
Minneapolis, large power contract closed in 315
Minnesota commission news 279
Minot, N. D., White Way for..... 812
Missouri commission news....176, 575 1118
Missouri contractors, annual convention of* 219
Mobile Electric Company, growth of business of 1057
Modern illumination for industrial plants, by Harry C. Spillman*.... 474
Modern methods of Lighting, by Albert L. Pearson* 84
Moisture and vaporproof reflectors*.. 1281
Morse telegraph, by George C. Maynard* 129
Moss electric window heater*..... 640
Motor and dynamo troubles, direct-current* 662
Motor, choosing (E)..... 506
Motor Club outing..... 156
Motor connections, trouble from interchanged* 1165
Motor drive for intertype and linotype machines, new*..... 589
Motor drive for main rolls, by E. Friedlaender 673
Motor drive for mine pumps*..... 964
Motor drive in tanneries..... 564
Motor drive proposition, alternative (E) 306
Motor-driven concrete mixer*..... 343
Motor-driven drill* 738
Motor-driven foundry-sand sifting and conditioning machine* 887
Motor-driven geared head lathe*.... 1088
Motor-driven heavy-duty lathes*..... 1034
Motor-driven hoist used as scraper*.. 295
Motor-driven irrigation outfits*..... 237
Motor-driven painting and enameling machine* 1131
Motor-driven rotary planer*..... 990
Motor, electric, and steam engine in parallel 569
Motor field, testing out..... 571
Motor, induction, protection for..... 668
Motor maintenance (E)..... 906
Motor, new Westinghouse single-phase* 235
Motor of new design, Westinghouse induction* 190
Motor, relative power requirements of, and its control equipment, by M. D. Goodman 982
Motor, repulsion 1170
Motor switch and cutout.....220, 221
Motor, synchronous, for line-voltage regulation* 926, 1019
Motor trouble* 178
Motor users, maintenance service for, by G. D. Crain, Jr..... 931
Motorcycle track at Newark, N. J., lighting of 124
Motorcycles, inspectors use..... 854
Motors, behavior of synchronous, during starting, by F. D. Newbury.. 27
Motors, control of alternating-current fire-pump, by Harrison Pierce Reed* 540
Motors for steel-mill service, selection of, by James Dixon..... 1178
Motors in woodworking plant, wholly inclosed* 40
Motors, induction, improved line of* 436
Motors, Lincoln squirrel-cage*..... 839
Motors, synchronous, industrial use of, by J. C. Parker..... 28
Motors, U. S. polyphase induction*.. 590
Motors, 6,000-horsepower 1284
Mountain railway electrification, by A. H. Babcock 628
Moving pictures and electrical advertising (E) 955

Muncie, Ind., house-wiring rates in.. 863
Municipal electrical inspection..... 617
Municipal plant for South Vancouver, proposed 984
Municipal plants shut down..... 1059
Municipal street lighting in Chicago (E) 451
Municipality, control of electrical installation by 816
Mykantin—wood preservative 943

N

Nally, E. J.*..... 957
National Association of Cotton Manufacturers, semi-annual meeting of 531
National Association of Electrical Inspectors.20, 221, 471, 667, 870, 974, 1113
National Association of Purchasing Agents 956
National Association of Railway Commissioners, convention of..... 937
National Conservation Congress, meeting of 1033, 1073
National Convention 374
National Electric Light Association, Baltimore Consolidated Section.. 852
National Electric Light Association, Boston Edison Company Section. 852
National Electric Light Association, Brooklyn Company Section..... 13
National Electric Light Association, Canadian representatives for 288
National Electric Light Association, Commonwealth Edison Section 784, 957, 1108, 1222
National Electric Light Association, Duquesne Light Company Section 452, 862, 910, 1250
National Electric Light Association, Kentucky Section 964
National Electric Light Association, Michigan Section, annual meeting of 424
National Electric Light Association, Michigan Section, convention of (E) 402
National Electric Light Association, New England Section..... 1180
National Electric Light Association, New England Section, convention of 109, 508, 622
National Electric Light Association, New York Companies Section.852, 1072
National Electric Light Association, 1914 convention to be held at Philadelphia 310
National Electric Light Association, Southwestern Section, elects officers 404
National Electric toaster and utility stove* 343
National Electrical Code, guide to changes in 1064
National Electrical Code, new edition of 470
National Electrical Contractors' Association, convention of.....60, 110, 171
National Electrical Contractors' Association, formation and growth of 571
National Electrical Supply Jobbers' Association, fall meeting of*..127. 574
National Registration League to hold convention 804
National Rivers and Harbors Congress 1052, 1169
Navy flatiron specifications..... 877
Navy, report of Secretary of..... 1176
Nebraska commission news..... 377
Negative booster* 527, 621, 728
Neglected opportunity (E)..... 403
Neighborhood merchandising* 565
Neon-tube lamp, by Georges Claude.. 677
New Albany "Booster" 214
New Albany (Ind.) Boosters' Club.... 1108
New Albany (Ind.) centennial..... 719
New appliance room in St. Louis..... 13
New applications of electricity as an adjunct to new business, by F. C. Caldwell 165
New business at Louisville 1260
New business, by J. E. North*..... 161
New business, new applications of electricity as adjunct to, by F. C. Caldwell 165
New electric steel works in England.. 233
New England Section, Electric Vehicle Association of America.....728, 1265
New England Section, National Electric Light Association 1180
New England Section, National Electric Light Association, convention of 109, 508, 622
New Hampshire commission news.821, 924
New Haven electrification, improvements in (E)..... 706
New Jersey commission news.....223, ...526, 620, 776, 924, 1067, 1118, 1217
New York City substitutes an electrical display for fireworks on the Fourth* 85
New York City to have new fire-alarm boxes 1263
New York City, unsafe wiring in..... 1262
New York commission news.....23, 127, 176, 223, 280, 326, 377, 575, 620, 727, 776, 976, 1068, 1168
New York Companies Section, National Electric Light Association 852, 1072
New York Edison Company, new booklets of 914
New York Edison Company, outing 310
New York Edison Company renders free emergency service..... 813
New York Edison, new sign for*.... 518
New York Edison outing..... 452
New York Edison trouble crew, record for 606
New York electrical code, ruling on service requirements of* 1064
New York electrical show*....530, 710, 827
New York Electrical Society, meeting of 1119
New York, income from electric signs in 119
New York, New Haven & Hartford electrification (E) 258
New York, rapid transit in..... 62
Newark, N. J., new street lighting in 1057
Nickel, variation of magnetism of, with temperature 636
Nipples for conduit work, making short 726
Nitrogen-filled lamp (E) 753
Nitrogen-filled lamps, by Irving Langmuir and J. A. Orange.... 781
Nitrogen lamps for Panama Exposition 1220
Nordberg uniflow engine*..... 339
Norfolk & Western Railroad to electrify 378
North Dakota has great fuel resource 135
Northern Idaho & Montana Power Company's subsidiaries, increased business of 1057
Northern Illinois street-lighting contracts 1058
Northwest Electric Light & Power Association, convention of....356, 528
Norwegian railway electrification..... 110
Norwegian water-power development authorized, further 585
Notes on grounding of electrical systems, by H. P. Liversidge*..... 416

O

Oakland road opens 558
Obituary:
Adams, Seth Collins..... 645
Aron, Dr. Hermann..... 749
Baker, Burton E..... 149
Barton, Dr. Daniel M..... 1243
Binning, Robert E..... 1195
Brady, Anthony N..... 197
Brooks, Mrs. Alpha Gerald..... 245
Busch, Adolphus 797
Chapin, Charles A..... 893
Cheever, John D..... 397
Compton, Prof. Alfred G..... 1243
Delafield, C. E..... 1195
Diesel, Dr. Rudolph..... 845
Edwards, Robert 749
Eichmeyer, J. C..... 549
Eline, J. Frank..... 645
Faben, Thomas H..... 149
Francisco, M. Judson..... 797
Gamwell, William W..... 645
Gillett, Ralph D..... 845
Harboldt, P. H..... 749
Heffren, Thomas E..... 1141
Heideloff, Charles 645
Hewitt, Albert E..... 349
Holtz, Professor William..... 996
Hyde, John 1291
Lane, John J..... 197
Leary, Michael J..... 445
Lee, Francis Valentine Toldervy.. 845
Lovell, Thomas D..... 1291
Macfarlane, Dr. Alexander..... 597
Mathesius, Alexander H..... 101
Morris, Robert Maxwell..... 749
Morse, Everett Fleet..... 1093
Norman, Luther L..... 893
Pass, James 996
Pease, Alfred H..... 1141
Preece, Sir William Henry..... 996
Richards, Henry M.....1093, 1141
Robbins, Charles D..... 1045
Scribner, Mrs. Agnes L..... 1093
Simon, Dr. Henri..... 1243
Smith, Charles S..... 1195
Stevens, Grafton R..... 949
Stevenson, James 493
Sweetser, John A..... 1243
White, Dr. Thomas Langan..... 445
Wiley, James R..... 397
Winchester, Reuben C..... 597
Office ventilation* 93
Off-peak load, by Melcher Ekstromer 731
Ohio commission news..... ....23, 176, 326, 421, 576, 821, 1168, 1265
Ohio Electric Light Association (E) 154
Ohio Electric Light Association, convention of 61, 180
Ohio electric light tax assessments.... 669
Ohm's law, convenient way to remember 616
Oil circuit-breakers, by K. C. Randall 629
Oil pump, electric alarm for*..... 1063
Oil switches for central stations*.... 92
Oklahoma Gas & Electric Company helps in water famine..... 862
Oklahoma commission news.....23, 79, 176, 326, 377, 473, 526, 821, 1217, 1265
Omaha, change of city electrician in.. 174
One-hundred-thousand-kilowatt plant for Manchester, new..... 785
Operating costs of power installations, determination of, by C. A. Fees.. 765
Operating problems, by J. B. Fisken.. 529
Operation of frequency changers, by N. E. Funk..... 30
Ore dressing, progress in electrostatic, by F. S. MacGregor..... 584
Organization among electrical inspectors, by Ben W. Clark..... 415
Organization, by John R. Galloway.. 1165
Organization of appliance department, by B. E. Rowley..... 34
Oroville, Cal., hydroelectric power for 358
Oscillograph, electrostatic 1190
Oscillographic study of corona, by Edward Bennett 32
Otis Elevator controller parts cabinet* 437
Ousting the gas engine (E)..... 851
Outing of fixture company..... 488
Outlets in plastered ceilings, tool for cutting* 278
Outlook, the 461
Outside lamps on brackets*..... 126
Overhead lighting in schools, reasons for, by D. W. Weaver..... 480
Overhead-line construction, safety in 666
Overhead lines at fires (E)..... 401
Overhead power, line crossing rules, Illinois Commission revises..... 606
Overhead wires, London's..... 386
Owensboro (Ky.) exposition..... 863
Ozonator for direct current..... 81
Ozonators for direct-current circuits—a correction 283
Ozonators, Sprague industrial*..... 839
Ozone for water purification, by M. W. Franklin 182

P

Pacific Electric Company announces new wage scale and increased income to employees..... 260
Pacific Mills new print works department, electrical equipment of, by Theodore A. Bergen* 14, 71, 833
Pacific Mills print works, coal and ash-handling equipment at*..... 832
Painting and enameling machine, motor-driven* 1131
Panama Canal locks, centralized control system for*..... 1251
Panama Canal Zone, electrical power transmission system for* 328
Panama exposition, exhibits at..... 60
Panama-Pacific Exposition, progress on construction work at*..... 1127
Panama-Pacific International Exposition, electrical construction for* 818
Panelboards insure safety..... 469
Paper mill, hydroelectric plant for.. 606
Paraffin as lubricant.....775, 923
Parallel operation 621, 823
Park and boulevard lighting in Chicago* 577
Park lighting in Louisville..... 296
Pass & Seymour porcelain socket, new* 1235
Pass & Seymour receptacles, new*.... 592
Passing of mile as unit of electrical measurement 724
Patent, Armstrong, upheld..... 128
Patents, annual report of Commissioner of 536
Patents, fees for design..... 1072
Patents, record of electrical.....47, 103, 150, 199, 247, 302, 351, 399, 447, 495, 551, 599, 647, 695, 751, 799, 846, 895, 951, 998, 1047, 1094, 1143, 1197, 1245, 1293
Patents, reissue 1020
Peabody, Mass., fire at lighting plant of 308
Peat, drying, for gas producers..... 531
Peerless improved fault finder*..... 1085
Pendent switch, handy..... 726
Pennsylvania commission news..... .....223, 421, 1168
Pennsylvania Electric Association, convention of 356, 630
Pennsylvania electrification 653, 781
Pentane lamp as working standard ..679
Percolator, coffee, pot-type electric* 539
Permissible load on branch circuit, 19
Petroleum production in 1912..... 431
Phase-rotation indicator* 94
Philadelphia Electric Company orders two big units..... 566
Philadelphia Electric Company plans additions to plant..... 308
Philadelphia Jovians to have theater party 1154
Philadelphia Section, Illuminating Engineering Society 4, 736
Philadelphia vehicle section organized 1265
Philippine water-power development 260

Photoelectric cell in photometry, by F. K. Richtmyer..... 679
Photometry, some studies in accuracy of, by E. J. Edwards and Ward Harrison 680
Physics of lighting..... 1119
Piano factories, electricity in*..... 263
Piano, motor-driven* 1039
Picnic of Chicago vehicle men and garage owners 110
Picture galleries, lighting (E)..... 1153
Pipe thawer, the Pittsburgh*.....1284
Pipe wrench, substitute for..... 1216
Pittsburgh, electrical goods displayed in 606
Pittsburgh exposition 805
Pittsburgh Jovians dine..... 1280
Pittsburgh pipe thawer*..... 1284
Pittsburgh Section, American Institute of Electrical Engineers..... .....806, 1025, 1274
Pittsburgh section dinner..... 1250
Pittsburgh, two large contracts in..... 1260
Pittsfield, Mass., considering municipal lighting plant 653
Plan Kuhn reorganization..... 406
Plant growth under electric light..... 880
Plate for wall switches, supporting* 639
Plating agent, warning against..... 1165
Platinum points, spot welding of, by H. E. Weightman* 686
Plug fuses, renewal of..... 1019
Plugs and receptacles, Ralco*..... 1187
Pnuematic conduit fisher*..... 943
Pocketbook, solicitors' (addenda)..... 566
Point of inferior commercial efficiency of distributing transformers, by E. D. Dreyfus* 1078
Poles and cables destroyed by white ants 880
Poles, Canadian production of, in 1912 979
Poles, manufacture and installation of concrete, by C. L. Brown..... 778
Poles, rusted iron, Mexican process for reinforcing 990
Poles, treatment of, by F. B. Uhrig.. 778
Police signaling boxes, improvements in, by Price T. Patton..... 430
Police telegraph and fire systems in small and medium-sized cities, operating, by A. C. Farrand..... 430
Porcelain and pottery art lighting fixtures* 487
Porcelain tubes and knobs, box for.. 1066
Portable electric mine lamps, by H. H. Clark 482
Portland, Ore., lighting contract.... 1010
Portland, Ore., rose festival*..... 466

PORTRAITS:

Bee, William G..... 357
Bleecker, H. L..... 549
Bond, Charles O..... 653
Bradford, C. C..... 693
Burns, A. J..... 1065
Campbell, Duncan T..... 757
Candee, Willard L..... 1045
Collins, W. J..... 77
Cowie, E. S..... 869
Douglas, Roydan R..... 121
Edwards, H. M..... 157
English, Thomas F..... 749
Ewing, Thomas, Jr..... 109
Farr, William 277
Freeman, Ernest 172
Glover, Benjamin H..... 805
Goss, W. F. M..... 61
Gschwindt, Adam 309
Knauber, Alex M..... 470
Latta, J. E..... 1141
Martin, J. C..... 181
Matthews, William N..... 909
Nally, E. J..... 957
Pass, James 996
Roeber, E. F..... 557
Schildhauer, Edward 1254
Schoen, A. M..... 605
Scribner, C. E..... 5
Smith, William Lincoln..... 853
Staley, E. L..... 774
Stapp, C. E..... 375
Sterling, H. C..... 405
Sterne, W. C..... 731
Wynkoop, Hubert Schuurman.... 709
Postal-car illumination, tests on, by A. J. Sweet..... 6
Poultry farm, electricity on, by Albert H. Bridge..... 1125
Power bill chart for two-rate schedule, by E. D. Dreyfus*..... 271
Power business, hint in soliciting (E) 154
Power concerns chartered, new Pennsylvania 758
Power conditions in an electrically operated laundry, analysis of*.... 1207
Power conditions in Northwest, by W. E. Herring..... 933
Power contract closed in Minneapolis, large 315
Power cost, relation of plant size to, by Paul M. Lincoln..... 783
Power costs, graphical chart of, by J. P. Ripley*..... 1058
Power costs in steam plants, by H. G. Stott and W. S. Gorsuch..... 29
Power development, California..... 757
Power distribution, report on..... 826
Power, electric, used in Norway..... 80
Power exhibits, impoving electric (E) 906
Power-factor simply defined..... 568
Power house at Speigner, Ala., formally opened 110
Power installations, determination of operating costs of, by C. A. Fees 765
Power-plant costs (E)..... 2
Power-plant efficiencies, present and future 1182
Power-plant fires 367
Power plants destroyed..... 156
Power plants, extension of Transvaal 70
Power project on Mill Creek, Ore.... 1154
Power rates, central-station..... 873
Power station of Meriden Electric Light Company, new..... 83
Power stations, fires in English..... 334
Power supply for Rand gold mines.... 118
Power supply on Rand, progress of.. 874
Power, supplying, to small communities* 191
Practice before commissions, by W. M. Wherry 683
Practical methods in installation of conduit in terra cotta, by G. N. McCarthy* 1162
Pre-cooling of refrigerator fruit cars 40
Presidental message 1129
Pressure rises, by William Duddell.. 1120
Preventing injury to door casing*.... 1216
Principles for cooking-apparatus design (E) 107
Principles of resale control, by F. P. Fish 534
Printing, central-station power for.. 1161
Printing plant, notes on wiring in large* 1012
Problem of rates (E)..... 850
Problems of small central station (E) 707
Producer gas from wood waste..... 1189
Production of poles in Canada in 1912 979
Professor Bell and Dom Pedro, by Walter P. Phillips..... 229
Promoting the use of materials not approved (E) 802
Proper basis for rates (E)..... 202
Proper conduit for circuit (E)..... 202
Proper lamp for circuit*..... 335
Proper lamp for circuit, by Fred Benson 670
Properties of insulating materials (E) 1201
Prospects for electrical engineers, by E. W. Marchant..... 1022
Protective equipment for 25,000-kilowatt turbogenerator 339
Protective relays on transmission lines, use of, by S. C. Lindsay 530
Prussian government hydroelectric project approved 137
Psychological values of light, shade, form and color, by F. Park Lewis 675
Psychology in advertising..... 1057
Public park and boulevard lighting in large city (E)..... 555
Public relations, by J. H. Pardee.... 1220

PUBLIC SERVICE COMMISSIONS:

California 23, 79, 127, 176, 279, 377, 421, 473 575, 668, 821, 976, 1067, 1168, 1265
Illinois 23
Indiana 473
Interstate Commerce Commission 127, 176, 378, 620, 1265
Maine 127, 326
Maryland 620, 821, 924, 1265
Massachusetts.....23, 127, 223, 279 326, 473, 526, 575, 620, 727, 776 821, 924, 976, 1067, 1118, 1168, 1265
Michigan 421
Minnesota 279
Missouri 176, 575, 1118
Nebraska 377
New Hampshire 821, 924
New Jersey 223, 526, 620, 776, 924, 1067, 1118, 1217
New York 23, 127, 176, 223, 280, 326, 377, 575, 620, 727, 776, 976, 1068, 1168
Ohio 23, 176, 326, 421, 576, 821, 1168, 1265
Oklahoma 23, 79, 176, 326, 377, 473, 526, 821, 1217, 1265
Pennsylvania 223, 421, 1168
Vermont 526
Washington 728
West Virginia 223, 668
Wisconsin 79, 176, 223, 378, 421, 473, 669, 728, 821, 925, 1068, 1118, 1168, 1217
Public-service developments, two notable events in (E)..... 1247
Public-service law, features of new Pennsylvania, by Frederic W. Fleitz 633
Public street lighting in Chicago*.... 453
Public utilities as affected by new Michigan constitution, by James V. Oxtoby 426
Public utilities, features common to.. 779
Public utilities, legislation affecting, by H. V. Bozell..... 881
Public utility commission law in Illinois, by William J. Norton.... 669
Pulley blocks, Laurent-Cherry*..... 987
Pulley for arc-lamp hangers, Kyle*.. 190
Pulling cleat line taut*..... 525
Pulling wire into conduit.....573, 1167
Pulmotor for drowning accidents..... 69
Pump, mine, for inclines*..... 192
Pumping by electricity, cost of..... 964
Pumping for irrigation* (E)..... 954
Pumping station at Farmington, Mich., automatic, by A. R. Cary..... 367
Pumping with electric motors, data on city water* 812
Pumps, electric house*..... 291
Pumps, Hartford (Ind.) to use electric 110
Pumps, mine, motor drive for*..... 964
Purchasing Agents, National Association of 956
Pyrometer, Brown high-resistance electric* 637

Q

Quartz lamp, mercury-vapor, by W. A. D. Evans..... 677
Quartz lamps, water sterilization by 928
Quartz-tube lamps for entrance lanterns* 743
Questions and answers*..... .....81, 178, 282, 422, 527, 621, 728, 823, 926, 1019, 1170, 1266
Quick connection in Springfield, Mass. 936

R

Radiant energy, transformation of, into chemical, by S. C. Lind.... 585
Radio Engineers, Institute of..... .....508, 976, 1183
Radio installation, improving, by E. F. Lathrop* 469
Radio instructions, government..... 287
Raft lantern* 437
Railroad project in Habana, Cuba, electric elevated 374
Railway battery cars..... 806
Railway buildings, wiring for electric light and power in..... 918
Railway crossing signals, electric* 824, 927
Railway, electric, proposed for Bagdad 340
Railway electrification around Havana, Cuba 1071
Railway, first Chinese electric..... 832
Railway illumination, street, by S. G. Hibben 675
Railway Signal Association, convention of 260, 838
Railway statistics, German electric.. 110
tric 110
Railway way-station test board*..... 1236
Ralco plugs and receptacles* 1187
Rand, progress of power supply on... 875
Rapid transit in New York..... 62
Rate reduction in St. Louis..... 213
Rate regulation (E) 355
Rate regulation, by William J. Norton 682
Rate regulation, two epochs of, by William J. Norton..... 379
Rate schedules 1108
Rates, by F. A. Newton..... 684
Rates, by L. H. Conklin..... 659
Rates, central-station power..... 873
Rates lowered in New London, Conn. 214
Rates, problem of (E)..... 850
Rates, proper basis for (E)..... 202
Rates, raising franchise..... 1071
Rates reduced in Montana..... 1206
Rates, report on Chicago..... 717
Rating of electrical machinery, International Commission's 806
Ratings for electrical machinery (E) 802
Reading, Pa., electric show at..... 214
Reading (Pa.), Ice Company purchases power 1183
Receivers appointed for American Water Works & Guarantee Company 87
Recent developments in lead battery, by Bruce Ford..... 902
Receptacle for decorative work, new* 391
Receptacle, new* 485
Receptacle, separable sign* 786
Receptacle, use of 471
Receptacles, new Pass & Seymour*.. 592
Receptacles, porcelain, increased adaptability of* 688
Record of art of illumination (E).... 107
Record of electrical patents..... .....47, 103, 150, 199, 247 302, 351, 399, 447, 495, 551, 599, 647, 695, 751, 799, 846, 895, 951, 998, 1047, 1094, 1143, 1197, 1245, 1293
Recording votes by electric means (E) 201
Recovering iron from steel-plant waste by electromagnetic separation* 1283
Rectifier of rotary type, three-phase* 1083
"Red Devil" glass cutter*..... 189
Reel for lamp cord*..... 1261
Reels, Eichhoff wire*..... 786
Reflector for painted walls, bulletins and signs, new wall*..... 388
Reflector, new angle bulletin*.....1281
Reflectors, moisture and vaporproof* 1281

Reflectors, sunlight mirror*..... 1281
Refrigerating apparatus, use of, to aid in cooling dynamos on overload, by Sydney F. Walker..... 977
Refrigerating, saving by electrical.. 813
Refrigeration congress, world....358, 605
Registration of electrical contractors, effects of 971
Registration to be required of Chicago contractors 174
Reinforcing rusted iron poles, Mexican process for 990
Reissue patents 1020
Relation of central station to its customers, by J. T. Shannon..... 611
Relation of plant size to power cost, by Paul M. Lincoln..... 783
Relative power requirements of a motor and its control equipment, by M. D. Goodman..... 982
Remedy for faulty wiring (E)..... 801
Remote-control gear, improvements in 321
Removing insulation from stranded conductors 573
Removing wires without breaking plaster* 923
Remuneration of electrical engineers (E) 1001
Rennerfelt arc furnace for producing electric steel 290
Repairing some hazardous wiring, by H. G. Wilson* 120
Repulsion motors 1170
Resale control, principles of, by F. P. Fish 534
Research laboratory, Technology..... 128
Reservoir for irrigation and generating electricity 984
Residence, electrical work in modern* 967
Resistance at low temperatures (E).. 449
Restaurants, electric, in Europe..... 982
Restoring old cars to use..... 333
Results obtained from active electric cooking campaign 214
Retail Lighting Fixture Dealers' Association of Pittsburgh..... 500
Retention of business of dissatisfied customers, by Thomas F. Kelley.. 117
Rewinding coils of arc lamps..... 1063
Rico coasting-time recorders*..... 1188
Rivers and Harbors Congress...1052, 1169
Roadside telephones* 95
Robbins & Myers, annual picnic of* 440
Rockford Electric Company, new home for 119
Rockford, Ill., house-wiring campaign at 768
Roeber, E. F..... 557
Rolling mills, electric drive for (E) 755
Rolls, main, electric drive for, by Brent Wiley 672
Rolls, main, motor drive for, by E. Friedlaender 673
Rosettes, new Pass & Seymour*..... 143
Rotary balancers, three-wire generators versus, by Alan M. Bennett 224
Rotary converter, Martin* 236
Rotary planer, motor-driven*..... 990
Rubber imports 852
Rubber trade, electrical requirements in, by C. A. Kelsey..... 29
Rules and regulations for outside operators, by S. W. Brown and J. A. Metz 634
Rules and regulations for station operation, by Ira G. Walborn..... 634
Rules in force in Detroit, special.... 277
Ruling on service requirements of New York electrical code*..... 1064
Running concealed circuits in finished houses* 420, 525
Rupture, theory of, by T. W. Peek, Jr. 32
Russian delegates visit New York.... 308
Russian delegates visit New York Edison station* 188
Russian lighting and heating exposition 585
Rusted iron poles, Mexican process for reinforcing 990
Ryerson Physical Laboratory of the University of Chicago, electrical equipment of* 1210

S

..... xzfi xz xzfi xzfi xz xz
Safety and Sanitation Conference.... ..... 1004, 1100
Safety at sea.....735, 819
Safety devices in German electrical factory* 980
Safety first 1206
"Safety first" policy reduces accidents 423
Safety gates, arc lamps as substitutes for 1004
Safety in overhead-line construction 666
Safety movement, electricity and (E) 1098
St. Louis electrical employees, census of 1154
St. Louis, house-wiring campaign in 862
St. Louis League of Electrical Interests 1154
Salesmanship, electric vehicle, by George H. Kelly and E. J. Bartlett 900
Salt mines, electricity in*..... 655
San Antonio Brewing Association, immense electric sign for*..... 767
San Diego exhibits, freight rates on 817
San Diego's electric sign..... 966
Sand, foundry, treatment of 1063
Sand-sifting and conditioning machine, motor-driven* 887
Sawing carbon* 126
Scale remover, motor-driven boiler and ship* 296
Schoen, A. M.* 605
School building, electrical installation in industrial* 122
School Hygiene, International Congress on 357
School illumination 478
Schools and libraries, illumination of (E) 353
Scottish authorities to visit America 358
Scribner, C. E.* 5
Sea, safety at.....735, 819
Sea water, gold from..... 1020
Sealing electrical conductors through glass 733
Searchlight, new A. E. G.*..... 290
Searchlight, new French military*.. 143
Seasoning timber electrically..... 516
Secretary of Navy's report..... 1176
Sectional book-case idea applied to battery-charging panels* 1146
Selection and operation of carbon brushes, by W. P. Poynton..... 671
Separating milk and cream by electricity* 485
Separator for use in connecting meter groups* 93
Service achievements, advertising specific (E) 954
Service boxes, concrete..... 124
Service boxes, cutting holes in..... 325
Service, by Stephen L. Coles..... 37
Service, by W. G. Huddle..... 684
Service cabinets, cutting holes in*... 573
Service code of successful central-station company 914
Service pipes, installing.....78, 278
Service switch and cutout, location of 1114
Shadow portrait of William Jennings Bryan* 885
Shanghai, increasing use of electric heating and cooking at..... 309
Sharpening a twist drill..... 1216
Sheboygan electric service booklet.. 1259
Sheffield municipality and electrical contractors 469
Ship, new electric*..... 789
Shipping crate for Duraduct*..... 1086
Shoe factory, electricity in modern*.. 407
Short-circuit from remarkable cause* 922
Shovels, electrically operated*..... 159
Show-case manufacturing, electricity in* 1203
Show windows and signs in India, electrically lighted 776
Show windows, lighting of, by H. B. Wheeler 679
Showroom wiring, suggestions for.... 772
Shreveport power-plant fire, quick recovery from* 136
Sierra Electric Company gets Federal permit 558
Sign and street lighting in Louisville Ky.* 1011
Sign, Baltimore, attracts attention*.. 13
Sign, electric prism action*..... 739
Sign, electric, San Diego's 966
Sign, flashing, for Texas brewery*.. 941
Sign for Little Rock, slogan*..... 813
Sign for New York Edison, new*.... 518
Signs for Rochester, N. Y., slogan... 863
Sign for San Antonio Brewing Association* 767
Sign in Toledo, new slogan*..... 718
Sign in Washington, large electric*.. 541
Sign manufacturers' association to be formed 958, 1100
Sign manufacturers organize..... 863
Sign, new form of electric advertising* 90
Sign ordinance in Fort Wayne, Ind.. 863
Sign problem, electric (E)..... 803
Sign rate, special..... 1258
Sign receptacle, separable* 786
Sign, slogan, at Toledo.....1258
Sign, spectacular, of Commonwealth Edison Company* 1259
Signs, report on New York..... 767
Signal board, wiring*..... 420
Signaling on trolley feeders*..... 1167
Signs and show windows in India, electrically lighted 776
Signs, electric, income from, in New York 119
Signs in Evansville, electric..... 119
Simplifying small central stations (E) 305
Single-braid wire, elimination of.... 1016
Single-phase traction for Norfolk & Western Railway 310
Slogan sign for Little Rock*..... 813
Slogan sign in Toledo*..... 718
Slogan signs for Rochester, N. Y..... 863
Slogan, using (E) 707
Slotting commutators* 1170, 1266
Small dealer's advertising 374
Small dealer's advertising (E)..... 306
Small dealer's advertising, by Richard E. Smith* 322
Small dealer's cost system..... 618
Small dealer's cost system, by Richard E. Smith* 370
Small dealer's inventory (E)..... 402
Small dealer's inventory, by Richard E. Smith 414
Small dealer's store (E)..... 258
Small dealer's store, by Richard E. Smith 272
Smelting of chromium, tungsten, molybdenum and vanadium ores, by R. M. Keeney..... 584
Smith, William Lincoln* 853
Smoke and electrification, Chicago, by W. F. M. Goss..... 433
Smokestack in electric-sign location, avoid* 1010
Soap manufacturing, electricity in*.. 63
Society for Electrical Development... ..... 1154, 1219
Society for Electrical Development activities 586
Society for Electrical Development, an analysis, by L. A. Osborne, of benefits of co-operation through 261
Society for Electrical Development, and some big men connected with it, an appreciation of Elbert Hubbard of 1128
Society for Electrical Development and the electrical contractor.... 1016
Society for Electrical Development and the electrical manufacturers 956
Society for Electrical Development, by J. Robert Crouse 186
Society for Electrical Development, campaign of, by J. M. Wakeman 452
Society for Electrical Development, discussion of plans and progress of 535
Society for Electrical Development, growing 1026
Society for Electrical Development, how it will help the individual, by Frank E. Watts..... 406
Society for Electrical Development, interesting side light on cost of membership in, by W. E. Robertson 228
Society for Electrical Development; its place, its object and its benefits, by Stephen L. Coles..... 586
Society for Electrical Development, join the (E) 1199
Society for Electrical Development, Javian campaign to assist..... 604
Society for Electrical Development, meeting of board of directors of 60, 109
Society for Electrical Development, new members of..... 909
Society for Electrical Development, new membership list of..... 1072
Society for Electrical Development, passes thousand mark..... 1100
Society for Electrical Development, pioneer-member week of..... 804
Society for Electrical Development, prizes for Jovians in membership campaign of 404
Society for Electrical Development, progress 852
Society for Electrical Development, progress made by 387
Society for Electrical Development, some reasons for joining, by Henry L. Doherty..... 381
Society for Electrical Development, time limit extended on Jovian campaign for subscriptions to.... 576
Society for the Promotion of Engineering Education, annual meeting of 4
Socket and lamp voltages, by Henry Schroeder 627
Socket, new Pass & Seymour porcelain* 1235
Socket, new push-button all-porcelain* 39
Socket, pull, new porcelain*..... 943
Sockets, Best Electric Company's lock* 1130
Solder for aluminum..... 1062
Solder, formulas for flux and.....1263
Solder, tool for catching*..... 973
Soldering ends of flexible conductors 571
Soldering paste, handy way of carrying* 1167
Soldering paste, unusual way of applying* 820
Soldering small work, handy tool for* 1018
Soldering stick, new..... 1066
Solicitor's pocketbook (addenda)..... 566
Solicitor's pocketbook, by V. S. Beck* 315
Some electrical fallacies..... 522
Some good conduit work*..... 570
Some interesting construction for street illumination* 519
Some interesting installation of indirect lighting, by Leonard V. James* 476
Some printed forms for electrical contractors, by E. M. Raetz*..... 917

Some reasons for joining the Society for Electrical Development, by Henry L. Doherty 381
South Vancouver, B. C., proposed municipal plant for 984
Southern California Edison Company secures large contract 337
Southern electrical jobbers visit Chattanooga 854
Southwestern Electrical and Gas Association 1914 convention 1250
South Yuba system started 1169
Southwestern Gas & Electric Company quickly recovers from Shreveport fire* 136
Southwestern Section, National Electric Light Association, elects officers 404
Spanish hydroelectric project 330
Spanish lamp works, combination 80
Spans, long, mechanical characteristics of, by A. R. Zahorsky* 288
Specialties, developing electrical (E) 1051
Specification, specimen 971
Specifications and profits on the job (E) 953
Specifications, concerning (E) 59
Spectacular sign of Commonwealth Edison Company* 1259
Speed regulation of motor-driven centrifugal blowers, by H. F. Stratton* 784
Splicing stranded cable 1167
Split attachment plug, new* 240
Split knobs, protecting 923
Splitting twin wires, tool for* 525
Spontaneous combustion of coal 587
Spot welding of platinum points, by H. E. Weightman* 686
Sprague industrial ozonators* 839
Spring cutter, circuits of electric* .. 523
Springfield, Mass., quick connection in 936
Standard specifications for copper wire 80
Standardization Committee Association of Iron and Steel Electrical Engineers, report of 671
Standardization of small appliances .. 1111
Stanley, William, and Edison medal (E) 2
Stapp, C. E.* 375
Stassano electric furnace in Southern California* 1081
State commission control, by John H. Roemer 533
Steam boiler working in electrical power stations, by J. W. Jackson* 1180
Steam-heating extended in Louisville, Ky. 768
Steam-turbine patent 128
Steam-turbine units, the limiting size of 1268
Steel automobile tires, elastic 989
Steel-mill service, electric motors for, by James Dixon 1178
Steel plant for Indianapolis, electric 854
Steel refining, electric furnace for .. 1230
Steel-reinforced aluminum cable 93
Steel works in England, new electric 233
Steinmetz, Dr. Charles P., addresses Chicago Electric Club 908
Steinmetz meeting in Chicago, annual 804
Step ladder, using, on very smooth floors 126
Stereopticon device, automatic* 436
Sterilization of milk 214
Sterilization of water by quartz lamps 928
Sterilizer, Forbes electric water* 340
Sterilizing water by ultra-violet rays 736
Sterling, H. C.* 405
Stobie Steel Company, new plant of .. 233
Stock-keeping and buying 1262
Storage batteries, high-capacity 1021
Storage batteries in Argentina telegraph offices 422
Storage batteries, some uses of, not generally known 89
Storage-battery connectors 928
Storage-battery plant, wiring in modern, by H. G. Wilson* 567
Storage-battery plates, forming 423
Storage-battery tanks, repairing 571
Storage of coal (E) 553
Store, electricity in the 1161
Store lighting by gas, by J. E. Philbrick 678
Store lighting, distinctive, by A. L. Powell and C. L. Law 678
Store, small dealers' (E) 258
Store, small dealers', by Richard E. Smith 272
Storm interrupts service of Cleveland utilities* 1026
Strain insulators, new types of porcelain* 1234
Street and sign lighting in Louisville, Ky.* 1011
Street illumination, some interesting construction for* 519
Street illumination with concrete poles, by F. A. Pielsticker 777
Street lighting, Boston 177
Street lighting, by D. W. Hayes 428
Street lighting, by Preston S. Millar and Norman D. Macdonald 632
Street lighting, by S. B. Cushing 670
Street lighting discussed at Pittsburgh joint meeting 1274
Street lighting in Chicago, municipal (E) 451
Street lighting in Chicogo, public* .. 453
Street lighting in Louisville 761
Street lighting, London 406
Street lighting on dark days (E) 1249
Street lighting, rates for, in Mayfield, Ky. 768
Street-lighting service, improvements in 62
Street lighting tables for 1914 1154
Street-railway illumination, by S. G. Hibben 675
Strike at Schenectady 1072
Suofeeds for individual apartments .. 21
Substation fuses for 66,000 volts* 292
Substation in mining district, by J. B. Fisken 629
Substation, portable, for a coal mine* 1238
Substation, automatic (E) 57
Substations, automatic, by H. R. Summerhayes 30
Substations in basements, by B. G. Jamieson 30
Substations, industrial, by H. P. Liversidge 782
Substations, outdoor type, to be discussed at Chicago 1202
Subway proposed for Genoa, Italy ... 136
Subway system, Chicago to advertise for proposals for 1027
Subways, Chicago's alternate plans for city-owned 310
Subways, Edison power in New York 661
Suggestions concerning contractors' conventions (E) 203
Suggestion concerning electric-vehicle advertising (E) 258
Suggestions for showroom wiring 772
Sunlight mirror reflectors* 1281
Sun River development 925
Superheat, automatic regulation of* .. 236
Supply men, among the 79, 222, 462, 574, 822, 1069, 1117, 1218
Supporting flush plate for wall switches* 639
Surges, high-voltage (E) 1098
Sweden, electric iron-ore smelting in 984
Swiss hydroelectric station, new 262
Switch box is not flush, when* 78
Switch box not flush 775
Switch control, special three-point* .. 1266
Switch, handy pendent 726
Switch, installing pendent 775
Switchboard design, tendencies in 670
Switchboard drilling, tool for* 1066
Switchboard for Panama on exhibition 228
Switchboard, installing 12,000-ampere, in isolated plant* 319
Switchboard signaling in world's largest power station* 538
Switchboards, control wiring on, by E. W. Dullea* 218
Switches, Arrow E snap, on world's biggest battleship* 988
Switches, Detroit ironclad entrance* 1235
Switches for central stations, self-contained high-voltage* 92
Switches for 33,000 volts, pole-top* 1083
Switches, high-tension disconnecting, of new design* 1234
Switches, Westinghouse magnet* 789
Switzerland, electrification in 928, 979
Symbols, electrical (E) 802
Synchronous motor for line-voltage regulation* 926

T

Tables for 1914 street lighting 1154
Tanks, repairing storage-battery 571
Tanneries, motor drive in 564
Tanning and meat curing, electric ... 927
Tasmania, hydroelectric project in .. 283
Tax assessments, Ohio electric light. 669
Taxation, double 1071
Technical advertising (E) 59
Tekton—fireproof artificial wood 886
Tele-Call system* 638
Telegraph and telephone lines, government ownership of, under consideration 1202
Telegraph, Morse, by George C. Maynard* 129
Telegraph office, first public* 88
Telegraph service at Gettysburg peace reunion 308
Telegraph war in Kentucky 128
Telegraphs and telephones, Railway Commissioners' report on 937
Telephone, Adnil insulated* 91
Telephone and telegraph lines, government ownership of, under consideration 1202
Telephone and Telegraph Society of the Pacific Coast 956
Telephone, birth and babyhood of, by Thomas A. Watson 836
Telephone booths, sanitary 1284
Telephone cable from London to to Birmingham, underground 289
Telephone cable, Gulf of Georgia submarine, by E. P. LaBelle and L. P. Crim 629
Telephone cable laid near Vancouver, long submarine 62
Telephone, computing costs by aid of* 142
Telephone consolidation proposed in Louisville, Ky. 260
Telephone exhibits at Panama-Pacific International Exposition 1088
Telephone fire 1026
Telephone from Holland to England 1072
Telephone investigation, Vermont ... 156
Telephone line, test of artificial aerial, at frequency of 750 cycles per second 24
Telephone merger, Government institutes suit to break up Bell 204
Telephone Pioneers of America, convention of* 204, 834
Telephone Pioneers of America make changes in constitution and by-laws 853
Telephone practice, Wheatstone bridge in, by H. C. Lightfoot* 878
Telephone problems of today, by N. C. Kingsbury 835
Telephone rate case 128
Telephone rates between France and Great Britain, new 1173
Telephone service and modern business methods 543
Telephone tax upheld, Michigan 128
Telephone toll switching, adaptation of automatic methods to long-distance 24
Telephone train dispatching on Denver & Rio Grande Railway 143
Telephone train dispatching replaces telegraph 1129
Telephone trunk system in United Kingdom 572
Telephones and telegraphs, Railway Commissioners' report on 937
Telephones, fifty million dollars for English 157
Telephones, government ownership of 804
Telephones in Canada, great increase in 604
Telephones on shipboard, intercommunicating* 1038
Telephones, roadside* 95
Telephones, testing intercommunuicating 1216
Telephony, automatic, in Great Britain 1135
Telephony, transatlantic 1068
Telephony, transcontinental 230
Telephony, wireless 1020
Telephony, wireless, on Japanese ships 576
Telephony, wireless, successful 686
Tennessee River plant starts 852
Tennessee River Power Company to dedicate Hale's Bar hydroelectric development 908
Terra cotta, practical methods in installation of conduit in, by G. N. McCarthy* 1162
Terrestrial magnetic disturbances, periodicity of 330
Test boards for railway stations* 1236
Test clip for heavy currents, a new* 1282
Test lamps, efficient 78
Testing armatures, convenient device for* 617
Testing armatures of motors or generators, method of* 664
Testing fixtures 1216
Testing fuses, device for* 376
Testing, high-voltage, and testing apparatus, by F. C. Loring* 132
Testing inside wiring, device for* 1066
Testing inside wiring, instrument for 923
Testing instruments, two useful* 1034
Testing intercommunicating telephone 1216
Testing machine in Bureau of Standards, world's largest* 989
Testing meter, load for 1263
Testing motor-field poles 523
Testing of low-head water turbines, by Lucius B. Andrus 1079
Testing out circuits, convenient way of 523
Testing out motor field 571
Testing set, improvised* 571
Tests of Alexalite indirect-lighting unit* 89
Tests on postal-car illumination, by A. J. Sweet 6
Texas contractors meet 1064
Texas Jovians celebrate 558
Theater, electrical work in modern* 864
Theater wiring 282
Theaters, control of emergency lights in 975
Theoretical considerations of light production, by W. A. Darrah 676
Theory of nonelastic and elastic catenary as applied to transmission lines, by C. A. Pierce, F. J. Adams and G. I. Gilchrest 27
Theory of rupture, by T. W. Peek, Jr. 32
Thermoelectric couple actuated by sun's rays 282
Thompson high-voltage series cutout hanger* 293
Thomson double bridge* 730
Thomson Quarter Century Club 156

Thordarson toy transformer*..... 234
Threading conduit without vise*..... 923
Threading pipes on ceilings..... 78
Three hundred thousand dollars to fight electricity 1220
Three-phase system, use of bare wire for neutral in four-wire..... 1115
Three-wire direct-current generators, electric service from*..... 1060
Three-wire generators versus rotary balancers, by Alan N. Bennett... 224
Tightening wires in cleat work..... 619
Timber, electrically seasoned..... 516
Time-keeping and meter records*..... 566
Time-limit relay 527
Time signals, wireless, by Alfred Gradenwitz* 382
Times Building, Los Angeles, electrical equipment of new..... 388
Tire pump, portable motor-driven automobile* 39
Tireless farmer, by J. E. Davidson.... 529
Tires, automobile, elastic steel..... 989
Toaster and utility stove, national electric* 343
Toaster, Westinghouse vertical*..... 1034
Tokio, Japan, electric power for..... 1157
Toledo cabinet requirements..... 1215
Toledo, Ohio, house-wiring campaign at 914
Toledo, Ohio, street-railway fares in.. 1120
Toledo Railways Company adopts improved lighting for street cars*.. 840
Toledo Section, American Institute of Electrical Engineers 986
Toledo, slogan sign at..... 1258
Tool convenient in repairing meters*.. 820
Tool for cutting outlets in plastered ceilings* 278
Tool for slotting commutators*..773, 922
Tool for splitting twin wires*..... 525
Tool, handy* 726
Tools, convenient way to mark..... 664
Torch, lineman's* 291
Torch, to ignite the..... 1264
Torch, universal blow* 141
Touring by electric automobile (E).. 651
Touring in electric roadster (E).... 907
Tractor, electric, for lumber and saw mills 1187
Trademark, new, of Louisville company 1259
Traffic problems and the automobile, by Dr. E. E. Pratt..... 900
Traffic signals in Cleveland..... 1072
Train control, wireless 740
Train dispatching by telephone on Denver & Rio Grande Railway.... 143
Train dispatching by telephone replaces telegraph 1129
Transatlantic telephony 1068
Transformation of radiant into chemical energy, by S. C. Lind..... 585
Transformer capacity for induction-motor feeder circuits 288
Transformer, Thordarson toy*..... 234
Transformer and lightning arresters, by J. W. Buchanan..... 670
Transformers, distributing point of inferior commercial distribution of, by E. D. Dreyfus*..... 1078
Transformers for manholes, Westinghouse* 338
Transformers, improvements in Packard* 638
Transformers, Kuhlman outdoor*..... 591
Transformers, pole-type, by C. E. Sisson 37
Transformers, sign-lighting, proper fusing of 1116
Transmission, constant-voltage, by H. B. Dwight 27
Transmission contract 1071
Transmission line data, filing (E)..... 1099
Transmission lines, ice loading on, by C. F. Uhden..... 628
Transmission lines, use of protective relays on, by S. C. Lindsay..... 530
Tregoning separable attachment plugs* 189
Trolley, convention delegates travel by 758
Trolley feeders, signaling on*..... 1167
Trolley harp, new*..... 988
Trouble from interchanged motor connections* 1165
Truck, electric, record performance for 296
Truck, electric, the merchant, central station and, by F. Nelson Carle.. 898
Truck, Hunt storage-battery industrial* 1038
Truck, industrial, as factor in efficient handling of internal freight, by W. W. White..... 1145
Trucking, night, electric vehicles for 916
Trucks, Baker electric*..... 500
Trucks, electric, large order for..... 964
Trunks and suit cases, electricity in manufacture of*..... 509
Tubes, Hatfield mercury switch*..... 639
Tubing, cutting flexible..... 726
Tungsten fixtures, new Kyle line universal* 687
Tungsten fixtures, new line of Kyle*.. 484
Tungsten-lamp efficiency and life, relation of..... 927
Tungsten-lamp efficiency increased... 156
Tungsten lamps, German manufacturers will also make high-candle-power half-watt..... 262
Tungsten lamps, half-watt, being sold in Germany..... 987
Tungsten lamps, methods of preventing blackening of, by Irving Langmuir 781
Tungsten lamps of high efficiency.... 781
Tungsten ore, 1912 production of..... 1108
Tungsten ores discovered..... 656
Tungsten renewals in New York, free 109
Tungsten, vapor pressure of..... 854
Tungstolier Works moves to Cleveland* 439
Tunnel, Lotschberg, opening of..... 131
Turbines for *Aquitania* 1176
Turbines, test of low-head water, by Lucius B. Andrus..... 1079
Turbo-alternators for Philadelphia, giant 260
Turbo blower sets, two big..... 640
Turbogenerator for Commonwealth Edison Company, large*..... 938
Turbo units, Interborough 30,000-kilowatt* 434
Turbogenerator for lifting magnet, locomotive crane with*..... 1133
Turbogenerator, protective equipment for 25,000-kilowatt 339
Turbogenerator units for naval service, compact* 90
Turbogenerators, direct-current, by H. A. Rapelye..... 671
Turbogenerators, increasing use of small* 391
Turbogenerators, largest, in Europe.. 989
Twenty-five-thousand-kilowatt unit for Commonwealth Edison Company*.. 938
Twenty-two reasons for using central station power..... 965
Two epochs of rate regulation, by William J. Norton..... 379
Two notable events in public-service developments (E) 1247
Two-rate schedule, power bill chart for, by E. D. Dreyfus*..... 270
Two-rate systems, meters for (E).... 1249
Two-rate tariff system without time-operated control, by H. H. Perry* 1159
Tyr-mount, new electric ship*..... 789

U

Ultra-violet rays, sterilizing water by 736
Unbalancing effect of grounds, by R. S. Brown* 327
Underground distribution for small cities, by S. Bingham Hood..... 35
Underground wires for Wakefield, Mass. 522
Underwriters provide British inspection 218
Union Electric Light & Power Company, St. Louis, service code of ... 914
United Railways, St. Louis, operating with Keokuk power 335
United States coal production in 1912 337
U. S. polyphase induction motors* 590
University of Illinois inspection trip.. 1100
University of Illinois, registration at.. 1071
Use of receptacle 471
Use of refrigerating apparatus to aid in cooling dynamos on overload, by Sydney F. Walker 977
Using the slogan (E) 707
Utility development at Fargo, N. D.... 863
Utilizing electrical energy in construction of Commonwealth Pier at South Boston, Mass.* 211

V

Value of small water-power privilege 70
Value of wireless equipment for vessels strikingly demonstrated..... 1257
Vancouver central station opens truck garage 69
Vapor pressure of tungsten..... 854
Vehicle advertising, electric, suggestion concerning (E)..... 259
Vehicle advertising in Boston, electric 119
Vehicle, electric, and central station (E) 1097
Vehicles, electric, British awakening to advantages of..... 1177
Vehicle, electric, by Stephen G. Thompson 36
Vehicle, electric, developing use of (E) 849
Vehicle, electric, for Christmas deliveries (E) 1248
Vehicle, electric, in Great Britain.... 119
Vehicle, electric—the central station's greatest opportunity, by E. E. Witherby* 49
Vehicle, electric, value of, to central station 701
Vehicle, electric, value of, to central station, by W. H. Snow and David W. Beaman..... 624
Vehicle exhibition, London..... 1030
Vehicle formulas, electric..... 423
Vehicle, long reliability run of English electric 108
Vehicle manufacturers and central stations, co-operation between, by E. L. Callahan..... 859
Vehicle operating data, electric..... 915
Vehicle salesmanship, electric, by George H. Kelly and E. J. Bartlett 900
Vehicle section, electric*..... .....49, 249, 497, 697, 897, 1145
Vehicle situation in Chicago, electric 966
Vehicles and signs, co-operative advertising of electric, by central station* 613
Vehicles, electric..... 249
Vehicles, electric, at New York Electrical Show..... 60
Vehicles, electric, for night trucking.. 916
Vehicles, electric, for 1914*..... 697
Vehicles, electric, from British point of view..... 249
Vehicles, electric, from central-station point of view, by C. Rummel.... 36
Vehicles in England, boosting electric 736
Vehicles in New York, users of commercial electric..... 714
Ventilation, office*..... 93
Vermont commission news..... 526
Vermont telephone investigation..... 156
Victorian Institute of Electrical Engineers, meeting of..... 518
Vienna railways..... 880
Voltages, socket and lamp, by Henry Schroeder 627
Voltmeter, iron-loss*..... 239
Voltmeter, new..... 390
Votes, recording, by electric means (E) 201

W

Wagner single-phase synchronous converters* 944
Walls, drilling..... 325
Walls, keeping, clean..... 325
Warfare, modern, electricity and (E) 403
Warning against plating agent..... 1165
Washing machine, Conlon electric*... 792
Washington commission news..... 728
Water, dearth of, in Middle West..... 357
Water-heater, electric, a new 660-watt* 1237
Water power at Conservation Congress 1033, 1073
Water power commission for Massachusetts 331
Water-power decisions on public lands 204
Water-power development, further Norwegian 585
Water power, development of (E).... 1049
Water power, development of Iceland's 287
Water-power development on public domain (E) 202
Water-power development on Skagit River 909
Water-power development, Philippine 260
Water-power investigation in Massachusetts 758
Water-power permit, big..... 156
Water-power policy to be discussed at Chicago 508
Water-power privilege, value of small 70
Water powers, Canadian..... 40
Water sterilization by quartz lamps.. 928
Water, sterilizing, by ultra-violet rays 736
Water striking high-tension line, danger from stream of..... 22
Waterproof concrete..... 1122
Waterwheel generators, Westinghouse* 790
Watson motors in candy factory*..... 91
Wattmeters, incorrect reading of..... 82
Waverly electric for shipment to Japan, boxing..... 344
Waverlys take prize..... 54
Way-station service, cordless jack boxes for* 1282
Welding, data on electric..... 915
Welding, electric (E)..... 105
Welding for track repairs, electric.... 885
Welding of platinum points, spot, by H. E. Weightman*..... 686
Welfare and efficiency convention to be held in Pennsylvania, industrial 604
Welfare work (E)..... 603
Welfare work of Boston Edison Company 626
Welfare work, report of Pennsylvania Electric Association Committee on 631
West Virginia commission news...223, 668
Western Society of Engineers, Electrical Section.....932, 1079
Western Society of Engineers, meeting of..... 526
Western States Gas & Electric Company gets new street-lighting contract 1057
Westinghouse dental lathe*..... 439
Westinghouse induction motor of new design* 190
Westinghouse Machine Company increases manufacturing facilities.. 1037
Westinghouse magnet switches*..... 789

Westinghouse single-phase motor, new* 235
Westinghouse shops, college instructors work in*..... 227
Westinghouse synchronous frequency-changer sets*..... 743
Westinghouse transformers for manholes* 338
Westinghouse vertical electric toaster* 1034
Westinghouse waterwheel generators* 790
Westminster Abbey, electric lights in 110
What he wanted..... 22
Wheatstone bridge in telephone practice, by H. C. Lightfoot*..... 878
White Way, Chattanooga's*..... 463
White Way for Dixon, Ill.*..... 735
White Way for Minot, N. D..... 812
White Way for Yonkers, N. Y..... 508
White Way in Little Falls, N. Y..... 931
White Way in Fall River, Mass..... 315
White Way in Los Angeles..... 459
White Way in Rockland, Mass..... 1161
White-Way lamps in St. Louis..... 768
Wico permissible electric safety lamp* 788
Winch, motor-driven*..... 175
Winch, novel electric*..... 438
Window display attracts attention, Baltimore* 213
Window heater, Moss electric*..... 640
Wire, how to straighten..... 175
Wire industry of 1909, census statistics of..... 158
Wire rack, practical..... 78
Wire reels, Eichhoff*..... 786
Wire, special insulation for..... 126
Wireless, another victory for (E)..... 755
Wireless apparatus, installation of.... 667
Wireless chain, British..... 156
Wireless communication with Berlin.. 157
Wireless communication with moving trains (E)..... 1152
Wireless communication with moving trains, further advances in..... 1275
Wiring equipment for vessels, value of, strikingly demonstrated..... 1257
Wireless in Australia..... 187
Wireless in war..... 439
Wireless law, operation of..... 806
Wireless operators, memorial to..... 604
Wireless progress 986
Wireless receiver..... 621
Wireless research in England..... 1100
Wireless research, international..... 956
Wireless signals, effect of atmospheric conditions on..... 734
Wireless station at Lake Bluff, Ill., new 406
Wireless station on Panama Canal... 308
Wireless stations, British colonial.... 986
Wireless stations for Paraguay..... 685
Wireless telegraphy in Africa, German 262
Wireless telephone apparatus, Japanese 171
Wireless telephony..... 1020
Wireless telephony on Japanese ships 576
Wireless telephony successful..... 686
Wireless tests, Goldschmidt..... 60
Wireless time signals, by Alfred Gradenwitz* 382
Wireless to Asia..... 230
Wireless to Norway..... 4
Wireless train control..... 740
Wireless work, Magunna tuning-fork system for* 344
Wires, fishing, into conduits..... 619
Wires in city streets, allowable potential of overhead..... 430
Wires in cleat work, tightening..... 619
Wires in walls, abandoning*..... 775
Wires in walls and partitions, fishing 973
Wires, preventing kinking of..... 525
Wires, preventing tangling of*..... 665
Wires, pulling, into conduit..... 573
Wires, removing, without breaking plaster* 923
Wires to partition-wall outlets, fishing 820
Wiring a fire alarm*..... 325
Wiring a signal board*..... 420
Wiring, annunciator* 726
Wiring campaign at Rockford, Ill., house 768
Wiring campaign at Toledo, house.... 914
Wiring campaign in Manchester, N. H., house 768
Wiring campaign in St. Louis, house 862
Wiring chain fixtures..... 525
Wiring contractors across the way.. 375
Wiring contracts at Story City, Iowa 74
Wiring, faulty..... 1111
Wiring fixtures*..... 376
Wiring for additional bell*..... 923
Wiring for electric light and power in railway buildings..... 918
Wiring for floor plugs, special*..... 973
Wiring for future service (E)..... 955
Wiring, guaranteed 663
Wiring, guaranteed (E)..... 354
Wiring, guaranteed, discussion of.... 1165
Wiring in Chicago, inspection of outside 524
Wiring in concrete buildings..... 1171
Wiring in modern storage-battery plant, by H. G. Wilson*..... 567
Wiring, interesting installation of exposed-conduit* 1012
Wiring kinks, dollar*..78, 126, 175, 278, 325, 376, 420, 525, 573, 619, 726, 775, 820, 923, 973, 1018, 1066, 1167, 1216, 1264
Wiring lamps for protection from burglars* 972
Wiring not done by Chattanooga central station..... 119
Wiring on switchboards, control, by E. W. Dullea*..... 218
Wiring rates in Muncie, Ind., house... 863
Wiring, remedy for faulty (E)..... 801
Wiring, repairing some hazardous, by H. G. Wilson*..... 120
Wiring rule, new, in Cleveland..... 1215
Wiring scheme for new type of garage, by H. G. Wilson*..... 324
Wiring, suggestions for showroom.... 772
Wiring supplies and appliances, electrical, foreign markets for..... 1263
Wiring, testing inside*..... 1066
Wiring, theater..... 282
Wiring to crane motor*..... 78
Wiring to fuse bases*..... 619
Wiring to wall-bracket outlet in house with floor running under partition 1018
Wiring, unsafe, in New York City.. 1262
Wirt drawn-steel insulating joints*... 1235
Wisconsin commission news..... .....79, 176, 223, 378, 421, 473, 669, 728, 821, 925, 1068, 1118, 1168, 1217
Wisconsin Electrical Association, convention of..... 1100
Wisconsin Electrical Contractors' meeting 219
With the electrical manufacturers.... .....46, 102, 150, 198, 246, 302, 350, 398, 447, 494, 550, 598, 647, 694, 750, 798, 846, 894, 950, 997, 1046, 1094, 1142, 1196, 1244, 1292
Wood, fireproof artificial..... 886
Wood preservative, new..... 943
Wood waste, producer gas from..... 1189
Woodworking plant, wholly inclosed motors in*..... 40
Woolen mills purchase power..... 1161
Worcester, Mass., growth in..... 167
Worcester, Mass., Electric Light Company makes heavy gains..... 718
Work, enthusiasm for the (E)..... 554
Working for the house (E)..... 705
World's largest precision testing machine installed in Bureau of Standards* 989
Wotton automatic battery-charging equipments* 139
Wrought-iron-plate foundation washers for electric machines*..... 1261
Wynkoop, Hubert Schuurman*..... 709

Y

Youngstown, Pa., activity in..... 412

Z

Zinc furnace, electric, by P. E. Peterson 584
Zinc mining, electricity in*..... 111
Zinc smelting, electric, by W. McA. Johnson 584

INDEX TO AUTHORS IN VOL. LXIII OF THE ELECTRICAL REVIEW AND WESTERN ELECTRICIAN

Adams, F. J., C. A. Pierce and G. I. Gilchrest, Theory of the Nonelastic and Elastic Catenary as Applied to Transmission Lines..... 27
Alger, E. M., The Relation of Illumination to Ocular Hygiene..... 478
Amrine, T. H., The Cooling Effect of Leading-in Wires Upon the Filaments of Lamps of the Street Series Type 675
Andrus, Lucius B., Testing of Horizontal Low-Head Water Turbines at Elkhart, Ind..... 1079

Babcock, A. H., Mountain Railway Electrification 628
Baker, H. S., Integrating Wattmeters with Recording Attachments 34
Ball, W. J., An Accounting System for Electrical Contractors* 75
Barry, E. J., Logging by Electricity 630, 717
Bartlett, E. J., and George H. Kelly, Electric Vehicle Salesmanship.... 900
Beaman, David W., and W. H. Snow, The Value of the Electric Vehicle to the Central Station..... 621
Beck, V. S., a Solicitor's Pocket Book* 315
Benjamin, Charles L., Advertising in the Technical Press..... 86
Bennett, Alan M., Three-Wire Generators Versus Rotary Balancers. 224
Bennett, Edward, An Oscillograph Study of Corona..... 32
Benson, Fred, Proper Lamp for the Circuit 670
Bergen, Theodore A., Electrical Equipment of the Pacific Mills New Print Works Department* ..14, 71, 833
Berry, Maxwell, Charging of Batteries in Unattended Garages..... 900
Bozell, H. V., Legislation Affecting Public Utilities 881
Brand, H. R., Efficiency in the Handling of Merchandising Details.. 1069
Bridge, Albert H., Electricity on the Poultry Farm 1125
Brackett, Norwood W., Recent and Proposed Legislation Affecting Public Utilities 529
Brown, C. L., The Manufacture and Installation of Concrete Poles.... 778
Brown, R. S., The Unbalancing Effect of Grounds* 327
Brown, S. W., and J. A. Metz, Rules and Regulations for Outside Operators 634
Buchanan, J. W., Lightning Arresters and Transformers 670
Butler, Hugh D., and J. A. Hoeveler, Illuminating a Drafting Room*... 929

Caldwell, F. C., New Applications of Electricity As An Adjunct to New Business 165
Callahan, E. L., Co-operation Between Electric-Vehicle Manufacturers and Central Stations 859
Campbell, William G., Code Equality and Sales Possibilities 281
Carle, F. Nelson, The Merchant, the Central Station, and the Electric Truck 898
Cary, A. R., Details of An Automatic Pumping Station at Farmington, Mich. 367
Cavanaugh, J. A., High-Tension Distribution by Means of One-Wire Grounded System 427
Chandler, Thomas, The Chain..... 463
Churchward, Alexander, Advantages of Clutch-Type Generator and Separate Starting and Lighting Units 1028
Clark, Ben W., Organization Among Electrical Inspectors 415
Clark, H. H., Portable Electric Mine Lamps 482
Claude, Georges, The Neon Tube Lamp 677
Coghlon, Thomas G., Economical Operation of Steam Boilers..... 634
Coles, Stephen L., Service..... 37
Coles, Stephen L., The Society for Electrical Development; Its Place, Its Object and Its Benefits..... 586
Conklin, L. H., Rates..... 659
Conrad, Frank, Electrical Equipment of Gasoline Automobiles..... 1028
Cordner, A. R., An Analysis of Some Complaints and Grievances of Central-Station Customers 268
Crain, G. D., Jr., Maintenance Service for Motor Users..... 931
Cravath, J. R., Indirect and Semi-Indirect Lighting 424
Crim, L. P., and E. P. LaPelle, The Gulf of Georgia Submarine Telephone Cable 629
Crouse, J. Robert, The Society for Electrical Development 186
Cushing, S. B., Street Lighting..... 670

Darrah, W. A., Some Theoretical Considerations of Light Production.. 676
Davidson, J. E., The Tireless Farmer Results from Ruralizing Electricity 529
Dicker, A. O., and M. H. Flexner, Factory Lighting 678
Dixon, James, Selection of Electric Motors—Minimum Maintenance and Repairs 1178
Doherty, Henry L., Some Reasons for Joining the Society for Electrical Development 381
Drake, Richard L., The Importance of Accident Prevention in the Administration of a Compensation Law 427
Dreyfus, E. D., Power Bill Chart for a Two-Rate Schedule* 270
Dreyfus, E. D., The Point of Inferior Commercial Efficiency of Distributing Transformers* 1078
Duddell, William, Pressure Rises..... 1120
Duffy, C. N., The Cleveland Situation 825
Dullea, E. W., Control Wiring on Switchboads* 218
Dwight, H. B., Constant-Voltage Transmission 27

Eck, Justus, Indirect Lighting by Arc Lamps 518
Edwards, E. J., and Ward Harrison, Some Studies in Accuracy of Photometry 680
Edwards, E. J., Recent Improvements in Incandescent-Lamp Manufacture 674
Ekstromer, Melcher, The Central-Station Off Peak—Its Remedy..... 731
Ely, R. B., Church Lighting..... 677
Evans, W. A. D., The Mercury-Vapor Quartz Lamp 677
Eversheed, S., The Characteristics of Insulation Resistance* 1223

Fair, Charles, Electric Drive in Machine Shops 782
Farmer, F. M., Dielectric Strength of Thin Insulating Materials..... 1230
Farrand, A. C., Operating Fire and Police Telegraph Systems in Small and Medium-Sized Cities..... 430
Fees, C. A., The Determination of Operating Costs of Power Installations 765
Fernow, B. E., Design and Use of Lifting Magnets 671
Ferree, C. A., The Efficiency of the Eye Under Different Systems of Lighting* 479
Fish, F. P., Principles of Resale Control 534
Fishel, A. D., Feeder Regulators..... 633
Fisken, J. B., A Modern Substation in the Coeur d'Alene Mining District.... 629
Fisken, J. B., Some Operating Problems 529
Fitch, T. T., and John R. Whitehead, The Electric Strength of Air..... 32
Fitz, George, The Practical Methods of Testing Light in School Rooms, with a Demonstrator of the Photometer for Lighting Tests in School and Work Rooms..... 481
Fleitz, Frederic W., Features of the New Pennsylvania Public-Service Law 633
Flexner, M. H., and A. O. Dicker, Factory Lighting..... 678
Ford, Bruce, Recent Developments in the Lead Battery for Electric Vehicles 902
Franklin, M. W., Ozone for Water Purification 182
Freeman, Ernest, A Fair Field for a Broader Market 331
Friedlander, E., Questions on Motor Drive for Main Rolls..... 673
Funk, N. E., Operation of Frequency Changers 30

Galloway, John R., Organization..... 1165
Gilchrest, G. I., C. A. Pierce and F. J. Adams, Theory of the Nonelastic and Elastic Catenary as Applied to Transmission Lines.... 27
Gilliland, John A., Co-operation of the Allied Electrical Industries from the Standpoint of the Electrical Contractors 615
Goodman, M. D., The Relative Power Requirements of a Motor and Its Control Equipment 982
Gorsuch, W. S., and H. G. Stott, Standardization of Method for Determining and Comparing Power Costs in Steam Plants..... 29
Goss, W. F. M., Chicago Smoke and Electrification 433
Gradenwitz, Alfred, Wireless Time Signals* 382
Gratton, G. W., Graphic Meters..... 34
Gray, A. A., Electrical Supply Jobber as an Economic Factor in the Distribution of Supplies..... 1069
Gstettner, Mathilde, Influence of Blackboard's Position on Lighting of Desks 480

Harrison, Ward, and E. J. Edwards, Some Studies in Accuracy of Photometry 680
Harrison, Ward, and H. H. Magdsick, A Progress Report on Illumination 673
Hayes, D. W., Street Lighting..... 428
Herring, W. E., Power Conditions in the Northwest 933
Hibben, S. G., Modern Practice in Street-Railway Illumination 675
Hoeveler, J. A., and Hugh D. Butler, Illuminating a Drafting Room*.. 929
Hood, S. Bingham, Underground Distribution for Small Cities..... 35
Howell, John W., Current Developments in the Manufacture of Incandescent Lamps 676
Huddle, W. G., Service..... 684
Hughes, George A., Electric Cooking 1106
Insull, Samuel, Commonwealth Edison Rates and Policy..... 1107
Insull, Samuel, The Distribution of Electric Energy Present and Future 532

Jackson, J. W., Steam Boiler Working in Electrical Power Stations* 1180
James, Leonard V., Some Interesting Installations of Indirect Lighting* 476
Jamieson, B. G., Converting Substations in Basements and Subbasements 30
Johnson, W. McA., The Art of Electric Zinc Smelting 584
Jones, Bassett, The Lighting of Colored and Ornamental Surfaces and Its Relation to Artificial Illumination 1119
Jones, George R., Central-Station Merchandising 412

Keenan, W. J., The Jobbers' Co-operative Methods 626
Keeney, R. M., Electric Smelting of Chromium, Tungsten, Molybdenum and Vanadium Ores..... 584
Keeney, Robert M., and Dorsey A. Lyon, Possible Applications of the Electric Furnace to Western Metallurgy 583
Kelley, Thomas F., Retention of Business of Dissatisfied Customers 117
Kelly, George H., and E. J. Bartlett, Electric Vehicle Salesmanship... 900
Kelsey, C. A., Electrical Requirements in the Rubber Trade..... 29
Kern, Edward F., The Electrolysis of Cyanide Solutions 583
Kerr, James, The Illumination of Class Rooms..... 481
Kershaw, John B. C., The Birmingham Meeting of the British Association for the Advancement of Science 732
Kilmer, William S., Hospital Lighting 679
Kingsbury, Edwin F., Experiments in the Illumination of a Sunday-School Room with Gas..... 677
Kingsbury, N. C., Telephone Problems of Today..... 835
La Belle, E. P., and L. P. Crim, The Gulf of Georgia Submarine Telephone Cable 629
Langmuir, Irving, Blackening of Tungsten Lamps and Methods of Preventing It 781
Langmuir, Irving, and J. A. Orange, Nitrogen-Filled Lamps 781
Lansingh, V. R., Characteristics of Inclosing Glassware 680
Lathrop, E. F., Cost of Manufacture in Six Medium-Sized Central Stations 11
Lathrop, E. F., Improving a Radio Installation* 469
Law, C. L., and A. L. Powell, Distinctive Store Lighting..... 678
Lewis, F. Park, The Psychological Values of Light, Shade, Form and Color 675
Lightfoot, H. C., The Wheatstone Bridge in Telephone Practice*.... 878
Lincoln, Paul M., Relation of Plant Size to Power Cost..... 782
Lind, S. C., The Transformation of Radiant Into Chemical Energy.... 585
Lindsay, S. C., Use of Protective Relays on Transmission Systems.... 530
Liversidge, H. P., Industrial Substations 782
Liversidge, H. P., Notes on Grounding of Electrical Systems* 416
Logan, K. H., and Burton McCollum, Electrolytic Corrosion of Iron in Soils 25
Loring, F. C., High-Voltage Testing and Testing Apparatus* 132
Luckiesh, M., Glare from Paper..... 480
Lyon, Dorsey A., and Robert M. Keeney, Possible Applications of the Electric Furnace to Western Metallurgy 583

McCarthy, G. N., Installation of Rigid-Conduit Work in Buildings of Concrete Construction*....720, 769, 814
McCarthy, G. N., Practical Methods in the Installation of Conduit in Terra Cotta* 1162

McCollum, Burton, and K. H. Logan, Electrolytic Corrosion of Iron in Soils 25
Macdonald, Norman D., and Preston S. Millar, Street Lighting..... 632
McDougall, D. H., Central-Station Advertising 37
MacGregor, F. S., Progress in Electrostatic Ore Dressing 584
McMeen, S. G., The Human Equation 184
McMicken, C. A., Management of a Commercial Department 529
Macomber, Alexander, Principles Governing Central Stations in Line Extensions, and Rulings of Commissions Thereon 623
Magdsick, H. H., and Ward Harrison, A Progress Report on Illumination 673
Marchant, E. W., The Prospects for Electrical Engineers 1022
Marsden, A. B., Problems of Central-Station Managers in Towns of Less than 5,000 Inhabitants 622
Maynard, George C., The Morse Telegraph* 129
Metz, J. A., and S. W. Brown, Rules and Regulations for Outside Operators 634
Millar, Preston S., and Norman D. Macdonald, Street Lighting..... 632
Millar, Preston S., The Present Status of the Art of Lighting..... 674
Moore, E. E., The Knight Public Fire-Alarm System* 168, 215, 274
Newbury, F. D., The Behavior of Synchronous Motors During Starting 27
Newton, F. A., Rates..... 684
North, J. E., New Business*..... 161
Norton, William J., The Public Utility Commission Law in Illinois..... 669
Norton, William J., The Two Epochs of Rate Regulation.....379, 682
Orange, J. A., and Irving Langmuir, Nitrogen-Filled Lamps 781
Oxtoby, James V., Franchises..... 185
Oxtoby, James V., Public Utilities as Affected by the New Michigan Constitution 426
Pace, T. J., Flame-Carbon Arc Lamps 35
Palmquist, D. R., The Use of Electricity in Irrigation for Intensive Farming* 959
Pardee, J. H., Public Relations..... 1220
Parker, J. C., The Industrial Use of Synchronous Motors 28
Parker, John C., Electricity on the Farm 36
Patton, Price T., Improvements in Police Signaling Boxes..... 430
Pearson, Albert L., Modern Methods of Lighting* 84
Peek, T. W., Jr., Law of Corona and the Dielectric Strength of Air.... 32
Perry, H. H., A Two-Rate Tariff System without Time-Operated Control* 1159
Peterson, P. E., The Electric Zinc Furnace 584
Philbrick, J. E., Store Lighting by Gas 678
Phillips, F. R., and J. W. Welsh, Recent Developments in Cars and Equipment by the Pittsburgh Railways Company 1025
Phillips, Walter P., Professor Bell and Dom Pedro 229
Pielsticker, F. A., Special Street Illumination with Concrete Poles... 777
Pierce, C. A., F. J. Adams and G. I. Gilchrest, Theory of the Non-elastic and Elastic Catenary as Applied to Transmission Lines.... 27
Porter, L. C., and V. L. Staley, The Illumination of Street Railway Cars 1023
Powell, A. L., and C. L. Law, Distinctive Store Lighting 678
Poynton, W. P., The Selection and Operation of Carbon Brushes.... 671
Pratt, Dr. E. E., Traffic Problems and the Automobile 900
Raetz, E. M., Some Printed Forms for Electrical Contractor* 917
Randall, K. C., Notes on Oil Circuit-Breakers for Large Powers and High Potentials 629
Rapelye, H. A., Direct-Current Generators 671
Richtmyer, F. K., The Photo-Electric Cell in Photometry 679
Reed, Harrison Pierce, Control of Alternating-Current Fire-Pump Motors* 540
Rhodes, William E., Increasing the Efficiency of the Electrical Contractor's shop 1164
Richards, J. W., The Heat Resistivity of Graphite and Carbon..... 583
Ripley, J. P., Graphical Chart of Power Costs* 1058
Robertson, W. E., An Interesting Side Light on the Cost of Membership in the Society for Electrical Development 228
Robinson, E. G., Management and Operation of an Electric Light Plant in a Small Town..... 517
Roemer, John H., State Commission Control 533
Rowley, B. E., Organization of Appliance Department 34
Rummel, C., Electric Vehicles from Central-Station Point of View.... 36
Schroeder, Henry, Socket Voltage versus Lamp Voltage 627
Scott, Albert S., Freight Bill Accounting 670
Shannon, J. T., The Relation of the Central Station to Its Customers.. 611
Sisson, C. E., Pole-Type Transformers 37
Smith, Richard E., Electric Power on a Dredger* 771
Smith, Richard E., The Small Dealer's Advertising* 322
Smith, Richard E., The Small Dealer's Cost Sysfem* 370
Smith, Richard E., The Small Dealer's Inventory 414
Smith, Richard E., The Small Dealer's Store 272
Snow, W. H., and David W. Beaman, The Value of the Electric Vehicle to the Central Station..... 624
South, D. B., The American Kicker.. 425
Southwell, W. L., Electricity in Cotton-Seed Oil Mills* 911
Spillman, Harry C., Modern Illumination for Industrial Plants*..... 474
Staley, V. L., and L. C. Porter, The Illumination of Street Railway Cars 1023
Staudt, John S., Electric Heating.... 685
Steinmetz, Charles P., Competition... 535
Steinmetz, Charles P., Instability of Electric Circuits 932
Steinmetz, Charles P., The Future Technical Development in the Electrical Industry 532
Stetson, W. G., Some Phases of Electric-Appliance Merchandising 624
Stokes, H. E., Commutating-Pole Saturation in Direct-Current Machines 28
Stott, H. G., and W. S. Gorsuch, Standardization of Method for Determining and Comparing Power Costs in Steam Plants..... 29
Stratton, H. F., Speed Regulation of Motor-Driven Centrifugal Blowers* 784
Strickland, H. F., Hydroelectric Rules and Regulations and the National Electrical Code 35
Strong, W. W., The Positive and the Negative Corona and Electrical Precipitation 32
Summerhayes, H. R., Automatic Substations 30
Sweet, A. J., Notes on Postal-Car Illumination 6
Swoboda, H. O., Design, Construction and Operation of Electric Heating Apparatus 806
Thompson, Stephen G., The Electric Vehicle 36
Titus, H. L., The Central Station in the Small Town 715
Turner, Mathias E., Cooking by Unity-Load-Factor Electric Ranges..... 181
Uhden, C. F., Effects of Ice Loading on Transmission Lines 628
Uhrig, F. B., Treatment of Poles.... 778
Vanderlip, Frank A., The Financial Outlook 533
Vose, Fred P., Discounts and System of Accounts 1069
Wakeman, J. M., The Campaign of the Society for Electrical Development 452
Walborn, Ira G., Rules and Regulations for Station Operation..... 634
Walker, Sydney F., The Use of Refrigerating Apparatus to Aid in Cooling Dynamos on Overload.... 977
Waller, Alfred E., Dynamo Electric Lighting for Motor Cars..... 1028
Ward, A. E., Simplified Accounting for Public Utility Corporations.. 731
Watson, Thomas A., The Birth and Babyhood of the Telephone..... 836
Watts, Frank E., How the Society for Electrical Development Will Help the Individual 406
Weaver, D. W., Reasons for Overhead Lighting in Schools..... 480
Webster, Norman E., Discussion of a Classification of Accounts and an Analytic System of Bookkeeping 1069
Weightman, H. E., Spot Welding of Platinum Points* 686
Welbourn, Burkewood, Insulated and Bare Copper and Aluminum Cables for the Transmission of Electrical Energy, with Special Reference to Mining Work..... 283
Welsh, J. W., and F. R. Phillips, Recent Developments in Cars and Equipment by Pittsburgh Railways Company 1025
Wheeler, H. B., The Lighting of Show Windows 679
Wherry, W. M., Practice Before Commissions 683
Wherry, William M., Jr., Franchise Values 825
White, W. W., The Industrial Truck as a Factor in the Efficient Handling of Internal Freight.... 1145
White, Y. M., Mechanical Devices in the Accounting Department*.... 514
Whitehead, John B., and T. T. Fitch, The Electric Strength of Air..... 32
Wiley, Brent, Present Status of Electric Drive for Main Rolls..... 672
Wilson, H. G., A High-Class Conduit Job in a Carpet Store* 614
Wilson, H. G., Repairing Some Hazardous Wiring* 120
Wilson, H. G., The Wiring in a Modern Storage-Battery Plant*..... 567
Wilson, H. G., Wiring Scheme for New Type of Garage*..... 324
Witherby, E. E., The Central Station's Greatest Opportunity—The Electric Vehicle* 49
Wright, H. P., Financing of Public Utilities 780
Zahorsky, A. R., Mechanical Characteristics of Long Spans* 288